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Southern Flight

The Birdmen's Perch

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FOR THE MATH-MINDED

J. L. Centanni, of New Orleans, tied this month's problem to a spare wrench and dropped it from a confusing altitude into T. W. T.'s right-hand desk drawer. Confidentially, we had to use the wrench to help solve it.

A big airport's hangars house 200 planes—some two-seaters and some four-seaters. The total number of seats is 464. How many two-seaters, and how many

four-seaters are berthed on the field?

(We can't forward the wrench to you. But hurry your answer in to "Tattered Wing-Tips" and we'll check it with the official one.)

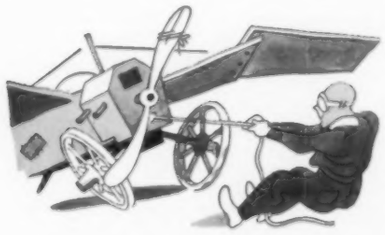
THIS MONTH'S WHOPPER

Dear Wing-Tips:

Here's one I'm swearing to on a stack of fish stories and Chamber of Commerce brochures.

About three years ago I got me one of those little gasoline, washing-machine motors and built me an airplane, using orange boxes, burlap bags, clothes-line wire, and a pair of old buggy wheels.

Well, sir, finishing time comes and goes and then comes testing time. I gets my creation out to the airport, dumps in some ordinary gas, and flips the prop over till she takes. Then when the motor is



warmed up good, I hops in and opens her up. But she won't budge!

I gets out behind and poooshes—she won't budge!

I gets out in front and poooooooollllss . . . she still won't budge!

After a time she's out of gas so I go over to a different pit and come back with a cupful of G. A. G. 'Course I wouldn't have put in more'n a few drops if I was to foresee the future. But not being a prophet, I dumps the whole cup in the tank and flips the prop.

Well, sir, that plane done the strangest thing! IT JUMPED INTO THE AIR LIKE A SHOT-GUNNED RABBIT AND WAS GONE! Just like that!

That was three years ago and I didn't see hair nor hide of my baby till the other day when I was visitin' around over to the airport. All of a sudden that flying orange crate comes bustin' out of the sky followed by a coupla eagles, a condor, two or three falcons, half a dozen assorted hawks, and the toughest-looking humming bird you ever saw. In no time at all the whole flight banked in to a landing and taxied up menacingly to the GULF AVIATION GAS PIT!

Yes, sir, Major, that truant crate finally run outa' gas and dropped in with the mob for more of the same!

Kenneth Reid

Gulf Oil Corporation and Gulf Refining Company . . . makers of

GULF AVIATION PRODUCTS

Southern Flight

NOVEMBER, 1939 VOL. XII, NO. 5

The complete monthly digest of aeronautics in the South and Southwest.

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★ ★ ★ ★ ★ Just Among Ourselves ★ ★ ★ ★ ★

Katie, Bar the Door

THE New York Municipal Airport was dedicated on October 15 amid a lot of fanfare and speech-making. Two long years of labor and upwards of $40,000,000 in public funds have gone into this, one of the finest air terminals in all the world.

We would like to join in with all the rousing cheers, wire our congratulations to Mayor Fiorello LaGuardia, the W. P. A., et al., and run a picture of the transformed North Beach Airport on our front cover. It would be nice; but under the circumstances we just can't build ourselves up to do it.

Already it looks like the airlines have hogged the whole thing and non-scheduled activities, once the heart and soul of North Beach business, will have to use the outlying fields from now on.

The proximity of the new Municipal Airport to the New York metropolitan area renders it one of the most practical and valuable airports in the world. It is natural that private owners, especially the large number of companies using airplanes for executive travel, should feel badly about the very obvious shut-out.

We might as well get this thing straight once and for all. The growing trend at large metropolitan airports to discourage private operations, to sell out hangar space lock, stock and barrel to the air transport companies, and to force private owners to run around to the back door and beg for service is not only thoroughly sickening but a dangerous threat to a healthy and valuable branch of the aviation family. New York City is not the only instance.

If it continues, the practice will result in the abandonment of airplanes by many companies and individuals. In addition scheduled operators are liable to find themselves in a tough spot if discrimination continues to spread, to say nothing of the vulnerability of Federal agencies in permitting such practices. There's lots of Federal money in our airports and huge air terminals and if public convenience and necessity are to be served, they must be open for use for all properly manned and equipped aircraft.

Now, about the airlines waiting until December 1 to jump in and take over the New York Municipal Airport. One can not logically blame them for securing proper facilities for their operations and looking out for their own interests. They are selling service and must keep on their toes to gain every advantage possible. New York is their most important terminal and by far the largest from the standpoint of traffic and revenue. The advantages of improved North Beach over old Newark airport are plainly evident, provided, of course, you don't live in Newark.

Let's take the case of the Amalgamated Screw and Bolt Corporation. They own three airplanes for executive transportation and have to do considerable flying from their midwestern factory to New York. The Federal Government comes along and through W. P. A. spends most of the $40,000,000 for a new air terminal within 20 minutes of downtown New York. The Amalgamated Screw and Bolt executives are just as anxious to use the airport as are the airlines. To their way of thinking it is as important to their business to land, hangar, buy fuel and take-off on the new super, super municipal airport. After all, they reason, aren't they flying about the same type of equipment with experienced and well paid pilots, just as in the case of the airlines? Even if they are using some other field they aren't going to stomach the idea that they aren't wanted at New York Municipal.

They are going to wonder about all the money Uncle Sam puts into the project and why they don't have just

as much right to enjoy the facilities created by that money as the airlines. How much taxes are they paying every year? And what are the airlines paying?

They are not without political influence nor are the hundreds of other important concerns and business men who are spending thousands upon thousands of dollars annually in private operations. As successful, progressive business men you can bet they will demand the utmost in service and convenience from their transportation as they do in every other phase of their business. Should they once set up a howl, and it appears as though they might, it will be a lot louder than an inter-airline squabble as to who's going to get Hangar Number 1 at North Beach. With Uncle Sam's money in the place, he will have something to say about it and Uncle Sam under pressure does some mighty strange things.

We have never been able to see cause for any conflict between the airline operators and private operations in the executive transport phase. It's pretty well agreed that on large and busy terminals there is no room for student operations or miscellaneous flying activity of local character that employs improperly equipped aircraft. But we vehemently maintain that the large corporate enterprises and business and professional owners of private aircraft that carry the identical instruments and radio equipment and boast the same type of trained personnel and proper maintenance, have every right to use the same facilities the airlines use, unless the air transport operators want to pool their resources and spend their own money for airports and terminals for their own exclusive use as the railroads and bus companies have done.

We believe that the airlines will readily admit these self-same private owners have been and will continue to be a source of revenue and benefit to them. You will find a well used airline credit card or scrip book in practically every wealthy private owner's pocketbook. You will also come to find these private owners constantly spreading the gospel of practical flight and selling their business associates and friends on air transportation. We think, too, that if you go far enough into the records, you will discover these men fairly well entrenched in the civic life of their respective communities and are constantly being called upon to get this or that concession for the airline operators. The two phases have always gotten along on a co-operative, friendly basis. But it won't last if Katie keeps barring the hangar doors and landing fields to Mr. Business Man.

Municipalities, the Federal agencies and the airline operators themselves would, if they were wise, give a little serious thought and consideration to a growing problem that might eventually prove out to be a rock that's too hot to handle and a boomerang that will come bouncing back with a lot of attendant black eyes.

★

Embargo Repeal

REPEAL of the embargo against arms shipments to belligerents means the immediate release of $170,000,000 worth of American Airplanes for export to Britain and France thereby fulfilling orders placed with our manufacturers prior to the outbreak of war. It is already apparent that this sum will be small fry in comparison to orders that are now in the making. The representatives of the French and British Governments are now ensconced in Washington headquarters, losing no time in buying American equipment for their respective air forces.

A rumor ran around for a while to the effect that the French Government was actually subsidizing some factories with finance money. The report was quickly denied, it having been explained that all money being used was for advance deposit purposes for future deliveries. Whether there is any basis for the rumor we probably will not ever know. Nevertheless, it is plainly evident which side of the war we are on and that French and British money has started to work in this country in earnest.

President Roosevelt asked for repeal of the embargo on the basis that it would effect stricter neutrality for the United States. It's all very hypocritical. With the embargo in effect we were aiding Germany and penalizing England and France. With the embargo repealed, we make available "arms, ammunition and implements of war" as well as all other goods to whomsoever comes along with the necessary long green. Germany having no cash or credit, the customers then are England and France. There is no doubt as to how the majority of American citizens feel about the European war and there is no doubt as to the administration's sympathies in the matter. We are out to back the Allies to the hilt and all this talk about strict neutrality is pure myth.

There's where the danger of American involvement in another European holocaust lies. There is and has been a lot of "behind the scene" government going on in Washington all during the brewing stage of the mess abroad. That fact, together with propaganda, and the sympathies of the man in the street for democratic principles provide just about all the necessary background for United States involvement. With growing frequency we hear the old, old phrase, "We'll soon be in it", despite all the noble editorials and speeches on keeping us out of this one.

It's a sorry thought that there will be profit to America and to our aircraft industry in this war. But that is the unadulterated truth. In knowledge of all these facts, let us remember that foreign orders are not going to interfere with the needs of our Army and Navy and that all business that does come from the bloody battle-fields of war-torn Europe will go to strengthen our own defenses, and perhaps, if we can keep our balance, we will preserve the freedom and liberty our forefathers fought and died for.

★

A Veteran Retires

THE last of the original members of the National Advisory Committee For Aeronautics appointed by President Wilson in 1915 resigned last month from active service because of failing health. He is Dr. Joseph S. Ames, whose faithful service and pioneering efforts in aeronautical research will remain forever an inspiration to the younger men upon whom rests the important responsibility of carrying on the tremendous research program of the N. A. C. A.

Dr. Ames' twenty-four years of service without compensation have included partially overlapping periods of seventeen years as chairman of the N. A. C. A. executive committee and twelve years as chairman of the main committee. His guiding genius during this long span of years is largely responsible for the remarkable accomplishments of our most important research body, reflected so admirably and brilliantly in the performance, speed, efficiency and safety of modern aircraft. The great laboratories at Langley Field, Virginia, will ever be a monument to his executive leadership, his scientific ability, his vision and his noble patriotsim.

His task has not been an easy one largely because congressional appropriations have never been commensurate with the demands of adequate research. Nevertheless, we

doubt if Uncle Sam ever received more value, dollar for dollar, in any other branch of the Federal Government as has been realized from the accomplishments of the N. A. C. A. It is little short of miraculous how the Committee has done so much on such short rations.

We opine that the culmination of Dr. Ames' career no doubt came with the final approval of Congress for another research center to be established on the West Coast at Sunnyvale, California. The Langley Field laboratories have been taxed to capacity for years. Important assignments and undertakings have had to be shelved in order to properly dispatch even more important resaerch problems. Meager appropriations plus over-crowded facilities and heavy schedules created a situation that required nothing short of genius, and Dr. Ames provided the rare qualities necessary to pilot the research ship of American aeronautics through all kinds of stormy weather.

Every man, woman and child in America, although few of them probably ever heard of the N. A. C. A., have profited from the leadership of Dr. Joseph Sweetman Ames. If America is "First in The Air", one of the fundamental factors in attaining priority has been the contributions of the N. A. C. A. to aeronautical research and progress.

But it is in the ranks of airmen and the entire aviation industry that the work and accomplishments of Dr. Ames will be most appreciated, perhaps silently, but nonetheless warmly and sincerely; and his quiet days in retirement, far from the thunderous wind tunnels of Langley, will no doubt be pleasant ones in the knowledge of that fact.

Expected Developments in Commercial Air Transport

THE airlines of this country are moving toward three phases of operation. This means three types of service and the use of three types of equipment. Our experience up to now has taught us that certain economies could be effected and certain service advantages maintained by the use of standardized equipment. Now, however, the picture is changing owing to the progress which has been made and is continuing to be made and traffic demands will require the three-way operation:

1. Long haul, trunk line flights with planes carrying approximately 50 passengers.

2. Commuter service between large centers of population with planes of the 21-passenger type in service today.

3. Feeder service from smaller communities with planes carrying 6 to 10 passengers.

In setting up this trunk line service it must be remembered that service must be provided for two classes of travel. There are the through passengers traveling all the way from one coast to the other. Then also there are the passengers enplaning or deplaning at points en route. This brings us to consideration of the connecting lines. Owing to the great increases being made in air travel these connecting lines now are increasing their seat capacity. Lines like Pennsylvania Central and Chicago and Southern, for example, are buying 21-passenger planes to replace the 10-passenger planes they have been using. Where is the percentage, then, in a trunk line flying 21-passenger equipment when the connecting lines are bringing in 21-passenger planes at several points en route? If the traffic is increasing on these feeder lines to justify greater seat capacity, the traffic must be increasing to justify greater seat capacity on the trunk lines into which these connecting lines feed. It is for this reason that United considered operation of the four-engined 52-passenger DC-4 Super Mainliners on its coast-to-coast airways.

Frequency of service is the element which has built up passenger travel on those trips which might be classified as "commuter" flights. The type of equipment now in use is eminently satisfactory for this service and will continue to prevail on these routes.

Under the provisions of the act which created the Civil Aeronautics Authority airline operation is regarded as a public convenience and necessity. This means that air transportation is assumed to assist in bringing about social and economic advancement for our people, and this, of course, must apply to the smaller cities as well as the larger centers of population. Under the C. A. A. a community has the right to petition for service. I think the airlines have an obligation to fulfill in this respect.

—W. A. Patterson, President
United Air Lines

(Condensed from an address before the Airliners Club of Chicago)

Out of the Laboratory Into the Sky

The Contributions of Telephonic Research to Aviation Radio

ALVIN VON AUW
Western Electric Company

IN a great laboratory in Manhattan a scientist makes a few abstract mathematical calculations on his scratch pad. He sits back, frowning thoughtfully. Obviously he has an idea by the tail.

Up the Hudson a big air transport drones across the sky, coming toward the city. In the plane the eyes of pilot and passengers, engineers and officials of Bell Telephone Laboratories and United Air Lines, are glued on two little dials, one a conventional barometric altimeter, the other the long-sought terrain clearance indicator or absolute altimeter. As the plane approaches the George Washington Bridge, the attentiveness of the observers intensifies perceptibly. The ship passes over the span and the needle of the terrain clearance indicator kicks downward, then moves up again. The barometric altimeter naturally shows not a quiver. The absolute radio altimeter has passed one of its final tests before commercial manufacture begins.

What is the connection between these two pictures, the mathematical musings of the scientists and the little dial in the plane? Each represents one end of the great chain of safety in the air, welded to ever greater security by a single factor, research—research which begins in the scientist's imagination and ends only after many an exacting equipment test has been completed.

It is a well-worn cliché, but nevertheless a figurative truth, to call an airplane a "living thing", for besides its skeleton and body, besides its highly-developed driving power, the modern airship possesses eyes and ears, faculties supplied by years of theorizing, invention and development in the communications industry, in the field of aircraft radio. The spirit of scientific investigation in this field has been one of organic evolution in which each advance has given rise to many others and in which the work of many men and groups of men have been interrelated—all to one end, that man may fly in safety, guided by invisible hands and bodiless voices.

It is typical of the organic nature of science and research that aviation radio development stems from another field of investigation, for the crude instrument over which a bearded young inventor succeeded in sending the words, "Mr. Watson, come here. I want you", is the venerable ancestor of the modern instrument over which today's pilot, speeding his plane along at a couple of hundred miles per hour, matter-of-factly calls his base. Alexander Graham Bell's attic telephone workshop was the forerunner of the great Bell System laboratory, which devotes all its resources to the solution of the problems of communication.

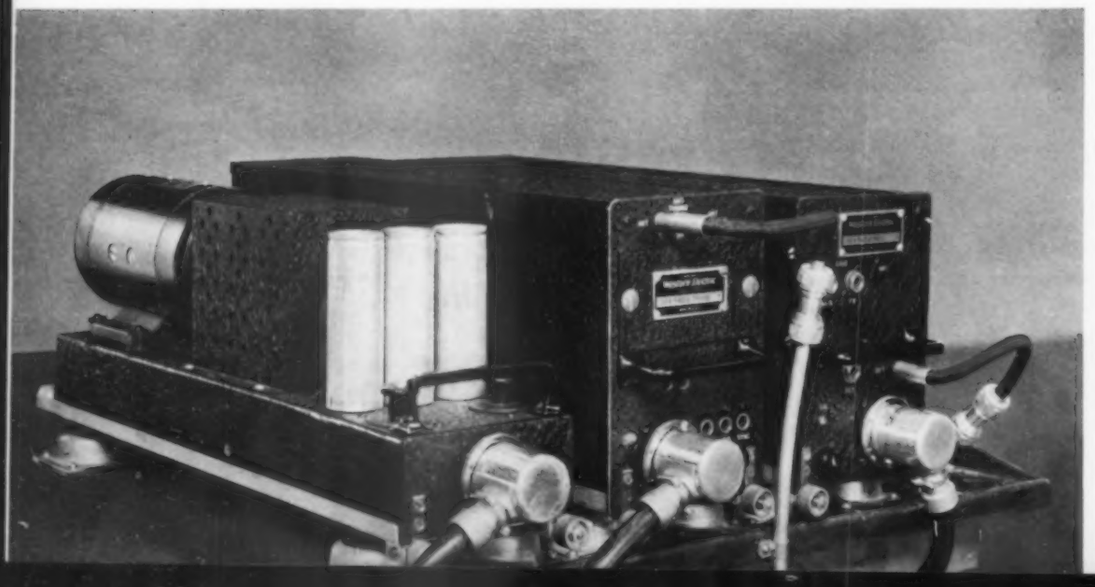
IN 1915 Bell engineers had succeeded in projecting man's voice by radio-telephone to Paris and to Honolulu. It is not strange, then, that the infant Army Air Corps turned to these men to develop satisfactory means of communication between aircraft and the ground.

On the broad basis of almost forty years of telephone research the engineer set to work and in 1917 made possible two-way radio-telephone communication between a Signal Corps officer on Governor's Island and the pilot of a plane flying overhead, the first instance of a complete understanding between the man with his feet on the ground and the man with his head in the clouds.

With the multiplication of flying fields, air routes and planes, the era of the flying packing case faded and came to an abrupt end when a young man—not as a hare-brained stunt but as the result of hair-breadth planning—flew the *Spirit of St. Louis* over the sea to Paris. All America craned its collective neck skyward. With development of an air-minded public it became increasingly obvious that steps must be taken toward the improvement of aircraft communication and navigation, toward the gradual elimination of the element of human error in flying and the conquest of the elements.

To this end, in 1928, Bell Telephone Laboratories purchased a plane which was converted into a virtual "flying laboratory". Today the Laboratories maintain at Hadley Field in New Jersey two ships, trail blazers in hundreds of radio test flights for many a vital piece of communications and navigation apparatus.

The earliest flights of the first "flying laboratory" sought to lay a firm foundation for later developments by exploring the frequency spectrum for the best allocations for aircraft communications (the beacon broadcast band, the intermediate two-way communications band and later the high frequencies), by field strength surveys and transmitter tests. The discovery of the necessity for separate



The main components of the 1A Radio Altimeter—modulator transmitter and receiver. The device employs transmission of a radio signal from the aircraft, reception of the signal as deflected from the earth, measurement of the elapsed time between transmission and reception, and the translation of this interval into a direct reading of the aircraft's altitude in feet.

Due to its use of ultra high frequency the new instrument is entirely free from static interference. Total weight of the complete apparatus is less than 50 pounds.

day and night broadcast bands came as a result of these flights, as did the substitution of the high voltage dynamotor for the old wind-driven generator.

It is a tribute to the researcher's art that the modern pilot takes his radio equipment so much for granted, yet depends so heavily upon it. In the early days of radio telephony the pilot had to tune his receiver by hand—with results uncomfortably similar to those achieved by cantankerous home radio sets of another day. Some device was obviously required so that the pilot tuning in would get his station immediately and automatically instead of "wrong number" or "out of order".

Then, out of the Bell Laboratories came the AT cut crystal or quartz plate which makes possible the locking of the pilot's receiver in tune with the ground station and is the basis for the quick-shift multi-frequency radio equipment which permits an airline pilot to pick up successive ground stations operating on different frequencies, by night or by day, with the mere flick of a key or dial.

THE possibilities of instrument, or "blind", landings have intrigued aviation specialists for years, and although there probably have been hundreds of such landings in the ten years since Lieut. Jimmy Doolittle plumped his ship down safely from a sealed cockpit, and although there have indubitably been dozens of blind landing "systems", none yet devised have received general acceptance. But, as surely as other links in the chain of air safety have been added, so will this one.

Telephonic research has lent its resources toward the eventual perfection of instrument flying and landing by the development of pieces of equipment which will play vital parts in the perfected system. In 1931 and 1932 the Bell Labs.' Fairchild, with the big blue bells painted on its sides, could be seen making landing after landing at Newark, "sliding down" the three-dimensional glide path set up by Messrs. Diamond and Dunmore of the Bureau of Standards. This system, employing a constant intensity glide path in the vertical plane, together with a runway localizer and marker beacons, was the forerunner of most later developments along these lines.

In the busy modern airport, depot for a great number of air routes and private flyers, traffic control is imperative. Just as the teletype developed in time to serve the booming railroad industry in routing and dispatching hundreds of trains a day in and out of congested terminals, so has the communications industry come to the aid of the airport dispatcher. The laboratories "passed a miracle" and developed one of the plane dispatcher's most vital equipments, the Western Electric ground direction finder, product of Bell Laboratories research. The man in the control tower of the busy modern airport may ascertain the direction of approach of a great air transport with its cargo of freight, human and otherwise, by the appearance of a tiny green radio-actuated light on a frosted glass screen marked with compass indications. He may then proceed to guide the pilot to a landing in accordance with the other traffic at the field.

THE terrain clearance indicator which we saw passing one of its final tests in its flight over the George Washington Bridge is typical of the Bell Laboratories development behind Western Electric products. This ingenious instrument was first conceived theoretically in the minds of the Bell scientists. The absolute altitude of a plane above the earth, the scientists theorized, might be determined by measuring the time it would take for a radio wave transmitted from the plane and bounced off the surface of the earth to reach the plane again. The time of the wave's excursion to the ground and back would be calibrated

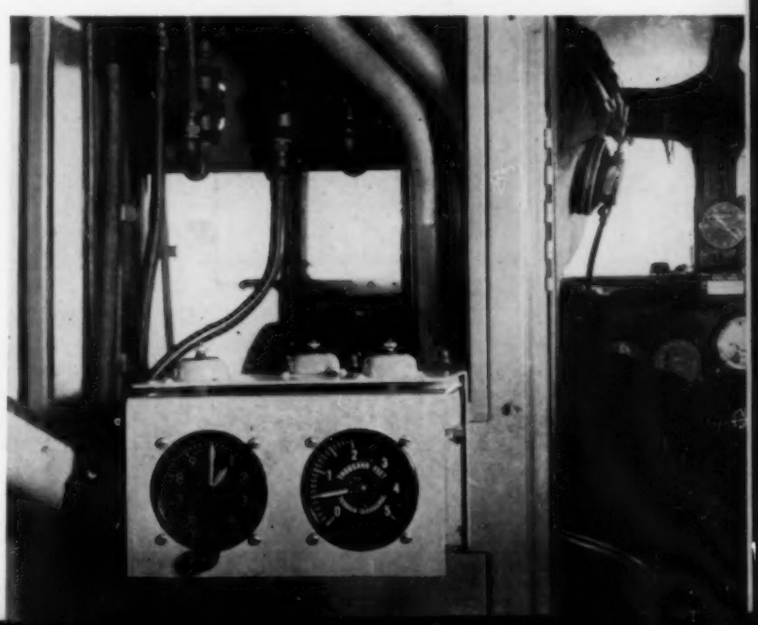
The dipole receiving antenna used in connection with the Western Electric terrain clearance indicator.

in feet on a dial giving an exact reading (up to 5,000 feet) of the plane's terrain clearance (rather than the sea level rating of the barometric altimeter which is often inaccurate by as much as forty feet and requires a knowledge of the countryside for a pilot to estimate the distance to the earth).

That was the theory, but its execution in practice waited upon the development of a special vacuum tube capable of 50 times greater frequency output than any hitherto used for aviation radio. It is typical of the wide advancing front of communications research that just such a tube was developed at this time, permitting a model of the equipment to be constructed. The model was installed on the laboratory bench of the Bell Lab.'s tri-motor plane and tested. It worked—and another series of research steps was begun. Refinements must be made. Pounds must be sweated off the over-all weight of the equipment until its total avoirdupois is now less than fifty pounds. Vibration-proof mountings must be devised. Manufacturing procedure must be worked out. Test flight after test flight, many in co-operation with a large airline, had to be made —until finally the scientists' dream became commercial

(Continued on Page 10)

One of the most conspicuous results of aviation radio research has been the absolute altimeter shown in this photograph of an experimental installation taken during the development of this equipment. While the barometric altimeter (left) shows a reading of 1,000 feet above sea level, the terrain clearance indicator shows that the plane is actually only 500 feet above the ground.



Accelerated Aircraft Production For National Defense

A Consideration of Many Problems Besetting the Aircraft Manufacturer as a Result of the Speeding-Up Programs Brought on by Heavy Orders from the Military

P. N. JANSEN

Factory Manager, Curtiss Aeroplane Division,
Curtiss-Wright Corporation

Part I

MUCH has been learned and done in the last five years about designing and building aircraft but much more remains to be done. No single move, policy or piece of equipment, no matter how far reaching in effect, provides the answers to all the problems in the aircraft industry. Although this paper deals with the military phase of the business, some parts may well apply to the industry in general. Rather than go into some single process or operation in detail, I feel that the subject calls for a broad review of matters leading up to and affecting production in general for national defense.

NATURE OF THE MARKET

The steady growth throughout the world of airline operation has created demands for airplanes, engines and parts. This demand is based on sound economics and it will therefore progress steadily regardless of temporary deviations and economic disturbances. The surface in this field has not been scratched and only lack of new development or unwise legislation will retard a steady healthy growth.

National defense is maintained to protect the Nation against foreign aggression and material demands of armies and navies fluctuate greatly because of world conditions. For several years there have been upheavals in different parts of the world and consequently great demands for armament. Much is claimed, and little known, about the airplane as a defensive or offensive weapon in modern warfare between great powers. We do know, however, that a great modern air force in the hands of a power can exercise a tremendous influence on the morale of its potential enemies.

Commercial design is naturally affected by competition and markets but new advanced output does not affect, to a great extent, the usefulness of what already exists. With the military airplane, this is a different story. Any advancement anywhere in the world in aircraft performance or armament immediately creates a new demand to outdo what exists and relegate to the background equipment with many years of useful service. If we assume that my bases are reasonably correct, the production of military airplanes under present conditions requires an approach of its own.

The type of equipment required for national defense depends upon the geographical location, potential enemies, national policies, etc. How the needs shall be filled, and with what, frequently changes with the top personnel in the different branches of government. The most basic reason for change is dictated by foreign development which must be exceeded.

PROBLEM OF PRODUCING THE PROTOTYPE

All this means very rapid changes and new designs. There are many schools of thought as to how best produce the so-called prototype or experimental airplane. After trying many different schemes, I personally prefer the plan of working out new developments under pressure with keen basic thought for sound production design but without completion of all details for large production; these to be worked out progressively as I will explain later. I believe that the creative mind works better under pressure and that it is easier to maintain the necessary enthusiasm, a very important factor.

Unlike production, which can be controlled through the use of equipment, charts and curves, experimental work depends a good deal upon the individual. Suppose we follow the principle of new development under pressure, it then becomes essential for the designer to be backed up by a strong research group. We all realize that a piece of machinery as complicated as an airplane is not built without troubles and problems. At this time development is too rapid to permit extensive service tests, which in the past meant four to five years from inception of a design to the ultimate production stage. By research I do not mean only the usual wind tunnel and aerodynamic tests but actual tests with new processes and with new mechanical devices applicable to what we will need in the future.

Since all prototypes conceived cannot be successful, it is better not to waste key personnel on all details for production until proven a winner. Even the winners usually have enough defects requiring changes which if completely designed for production would mean a great loss of engineering man power that could have gone into more sound basic design in the first place.

When I say, "Do not spend time designing for production", I do not mean careless or improper production design. To illustrate the point, let us take a fitting which eventually will become a forging. I would design and build a hogged-out fitting as near to a forging as possible but without spending time on reproducing all details peculiar to a forging such as fillets and draft angles. I would not go into extensive detailed drawings on installations which two to one will be rearranged. The success or failure of any plan depends on ability of personnel, soundness of organization, and common sense policies but I sincerely believe that under present conditions rapid development is sound; therefore cut out the dead wood as soon as possible and concentrate for production on the winners.

THE PURCHASE OF PAPER AIRPLANES

The present Air Corps procurement plan has been called, "The purchase of paper airplanes". By this is meant that they are purchased from a design rather than the test result of a physical article. This is not altogether true. All the new designs are the outgrowth of some existing prototype or production model from which known characteristics have been taken and then applied to the "paper design". However, practically all details are dimensionally different, which brings in new tooling cost and an experience factor. To safeguard against extensive losses through errors, trial of new methods, changes, etc., we have adopted a procedure which provides production speed

with a chance for checking difficult items on a small scale. I would like to call this the plan of progressive production development:—Immediate wind tunnel tests—Mock-up for installation checks—Partial rough bill of material—Intensive engineering program, and Advance prints for tool design. Commitments on forgings and castings are made in full quantity with reservations and only a small lot—from ten to twenty-five sets—is brought in. Orders for parts are released for five sets, one static test, three flying articles and one extra set of parts to cover replacements. From there on close co-ordination of all branches of the organization is necessary. Five sets of parts are made from production tools and no more are released until each part is proven in its respective assembly. After this, basic structure parts may be released for full quantity. Installation of operating parts, which cannot be fully checked until flight tests, are released for smaller quantities. A group has been set up in our experimental building adjacent to Engineering Loft, Tool Design and Planning, to assemble from one to three airplanes and a static test article. There, cowling fuel and oil lines and electrical details are worked out and all installations checked. Tools for these parts, which require physical development, are worked out with the tool people. The assembly group referred to consists of high grade mechanics. This force is augmented by key men from the Production Departments, merely for the purpose of acquainting the production people with the work they are later to take over.

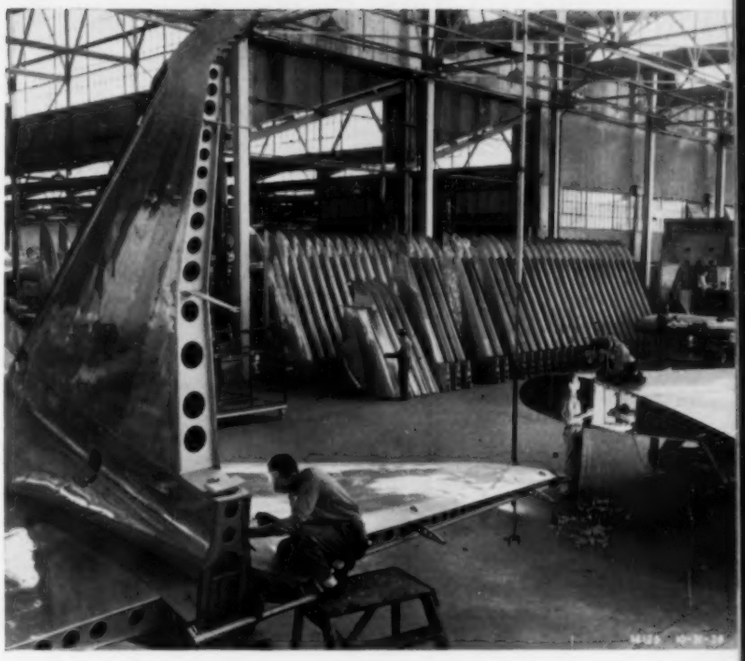
LOT SYSTEM PRODUCTION

Although it may be in order to release from engineering without restriction, production under a lot system seems desirable, especially if the number of parts or units exceeds 40 to 50. Size of lot depends on the number of airplanes in the order and production schedules. A large bomber going through at one per day needs a different plan than a pursuit or trainer going through at three or four per day. Parts for assemblies, especially those affected by machine operations, should be of such lots to avoid split-offs during their entire sequence of operations. The lot size then is governed by several factors, total quantity, number of assemblies scheduled for a given time, fabricating capacity and interference from other work. Production assembly is usually controlled by supplies, space, assembly tools and man power. Fabricating, first of all, takes materials, and, secondly, equipment frequently causing more of a bottle neck than assembly. If, for example, the schedule calls for 20 airplanes per week and fabricating capacity permits, lots of 40 sets of parts seem practical with, of course, a sufficient differential in elapsed time between fabricating and assembly. Presuming that 40 sets of parts is the average, it is sometimes advantageous to double or triple lots in case of expensive setup for small parts. Certain machine parts with numerous operations may require smaller lots to avoid duplication of costly machine tools. However, a well-worked out lot system is essential because of inventory control, storage, possible losses and damage in storage and, above all, a balanced personnel and equipment setup.

NEED FOR CONTROL

Careful control of quantity, quality and schedules through planning purchasing and the factory are of utmost importance. With so many variables, great numbers of different parts and ever changing specifications, I consider control a problem that still needs considerable improvement.

Whether prototype or so-called paper airplane production, the time element is short. Changes come quicker and obsolescence is always "just around the corner". Because of this, our setup must be able to cope with these conditions. To briefly summarize, an organization must have driving power, the whole team must move forward at one time.



TAIL SURFACES READY FOR ASSEMBLY IN THE DOUGLAS PLANT

A large transport or bomber going through a factory at one per day needs a different plan than a pursuit or trainer going through at three or four per day. Parts for assemblies, especially those affected by machine operations, should be of such lots to avoid split-offs during the entire sequence of operations.

Studies have shown that cost and elapsed time curves flatten out favorably at about 40 units. From then on the course of the curve depends upon internal conditions and service changes immediately applicable on production.

Activity must start all over simultaneously. Development and production must be blended, also factory layout, control and organization are becoming more and more important in a swift moving industry.

SERVICE TROUBLES

A new factor in the production of "paper airplanes" which should be recognized is service. We must prepare to give adequate field service and make changes expeditiously. Defects and need for improvement usually found in experimental or service test airplanes may now be found in production quantities.

After getting the static test and first article out, we have to cope with the experience factor or inertia. The severity of these factors depends upon many conditions. If the general design, regardless of dimensional differences, has been built in production, the experience factor may not be expensive. Changes made necessary by indications of early flight test and service will cause costly upsets. Good planning and tooling and close co-ordination in the early stages will do much toward smoothing out difficulties. Even under the best conditions, the human element and repetitive skill enter into the picture.

TOOLING

Studies have shown that cost and elapsed time curves flatten out favorably at about 40 units. From then on the course of the curve depends upon internal conditions and service changes immediately applicable on production. For quantities produced so far and for a certain tooling outlay, labor and material costs have not been reduced much beyond the 100 units. The above figures can be most accurately checked on sub-assembly and assembly work. Fabrication of

(Continued on next page)

parts may be greatly affected by tooling and special equipment, such as used in mass production of automobiles, should a quantity warrant. Where to draw the line is difficult to tell, as consideration must be given to elapsed time in the research and production of such special tools and equipment.

It may be practical to begin with fairly conventional tools for a quick start and blend in with high speed fabricating tools and equipment later. Production may thus be accelerated at ultimate lower costs, provided quantities are large and the design is frozen. Considering the rapid need for development, large scale production of airplanes on a war basis is a difficult problem and there is much to learn. Having had an opportunity to travel extensively both in this country and abroad and having seen Europe at work in the last two years, I have some pet theories on the subject of war planning. The country as a whole has tremendous manufacturing capacity but to adapt it to production for National Defense is a problem not easily solved. American industry is too highly specialized for a quick changeover. In this age of high speed and mechanization, military equipment must be ready at all times for an emergency with a manufacturing capacity for quick replacement.

AIRCRAFT MANUFACTURERS' RESPONSIBILITY

Raw materials, standard parts, equipment, etc., may be successfully planned and procured by government agencies but I believe that no matter how much aid can be given by industry in general to aircraft, we, as aircraft manufacturers, should be responsible and maintain centralized control through our respective organizations. This conclusion is not based on a jealous prerogative but the practical outlook on a serious problem.

OUTSIDE VENDORS

Today, under normal conditions, it is impossible to buy services from the outside without guidance from the buyer. This still does not prevent some difficulties and an expensive starting inertia in most cases. This is no reflection on able vendors but the simple age-old law of mechanics which may go under the name of experience factor. Parts finished on machine tools such as lathe, mills, screw machines, etc., have a better chance of satisfactory production by outside help than parts formed and ultimately assembled from light alloys. This is true because machine practices, standards and tolerances have been established through the years. Work is usually performed on equipment standard throughout the world. Drawings can be accurately prepared and unknown factors are few. Fabrication of nearly all other airplane parts requires some special knowledge and a trial and error period.

There is a definite place for small companies to make a general run of aircraft parts not directly in the machining class but it takes time, practical application and expert guidance from management and supervision with aircraft experience background. Such companies properly financed and managed could form the first outlet for overflow and proportionately expand in time of emergency. Provided the airplane contractor has the personnel and capacity, time could be saved if he supplied proven tools and samples of sheet metal parts to the sub-contractor. In this manner some use may be made of mass production plant capacity. However, it is impractical to start after an emergency arises and the only manner in which these facilities can be used is through training with actual production. I see no alternative from a realistic picture, as you will only get in war time what you prepare and pay for in peace time.*

(To be concluded.)

Condensed from a paper presented at the National Aircraft Production meeting, October 5-7, 1939, and reprinted with permission of the Society of Automotive Engineers.

Out of the Laboratory

(Continued from Page 7)

reality. Each installation in the nation's airliners would mean, the researchers hoped, that the margin of human error was pushed further back, would probably mean a reduction in the air accident rate.

AND so aviation radio research goes on. In the laboratories scientists are probing for a theory or an invention which by specific application will promote safety in the air. Models are being built and flown in test after test under routine conditions. Vacuum tubes, cornerstones of aviation radio as of wire telephony, burn by the thousands in lifetime tests. Equipment undergoes gruelling shock and vibration tests, simulating a life of service in a few torturing hours. The physical culture experts of radio put the apparatus through a reducing routine, harrying the equipment down to the minimum weight requirements for maximum performance. Manufacturing engineers are designing machines and processes to turn out equipment according to schedule.

The value of research is becoming more and more widely recognized by government and private organizations. The great airlines have organized special radio research divisions which work with the scientists and engineers of the communications industry toward the goal of absolute safety. Hardly a week goes by without news of some new improvement, some refinement in instrument flying facilities, for instance. The ultra-high frequencies are being harnessed for the airman's use. The possibilities of frequency modulation are being explored. The CAA is contemplating the erection of an ultra-high beacon system from Newark to Chicago, a 700-mile research laboratory. The same organization has recommended that the ultra-high radio ranges installed at Indianapolis and Pittsburgh be duplicated at ten other airfields throughout the country to train pilots in the technique of blind landing.

So efficient and unassuming is the equipment behind the control panel of the modern airliner, so highly developed are the transmitters and receivers of the ship's full complement of radio equipment, that very rarely do the minds of passengers wonder at the long tradition of ceaseless scientific investigation and application that brought each single piece of apparatus out of the laboratory into the sky.

TWA Co-Pilots Graduate

Not the Army, but a new graduation class of TWA'S first officer training school. Vice-President Larry Fritz pins a TWA pilot's insignia on new First Officer Emmett Clauswitz of San Antonio as the graduating class of eleven stand at attention.

The Air Reserve Conference

The most successful Air Reserve Convention in history goes on record for an efficient training program established under a pay status, and for support of Senate Bill 2225, which provides for appointments in the Regular Army for various reserve commissions

THE Ninth Annual Air Reserve Association Conference and Convention took place at Mitchel Field, Long Island, and Hotel New Yorker in New York City on October 9th, 10th and 11th. On Saturday and Sunday, October 7th and 8th, visiting officers were received at Mitchel Field and taken by private cars to New York. On Monday the group went to Mitchel Field for an all-day meeting and luncheon, attending a large dinner that evening at the Columbia University Club. Following the morning meeting on Tuesday, the Reserve Officers were entertained at the New York World's Fair. On Wednesday the Association and National Council met in official sessions, after which an inspection of the new North Beach Airport was arranged. The annual banquet was held that night at the Hotel New Yorker, with Major General H. H. Arnold, Chief of the U. S. Army Air Corps, as principal speaker. Everyone in attendance at the Ninth Annual Conference agreed that it was the most successful ever held in the history of the organization. More than 120 reserve officers representing all corps areas attended the conference.

Lt. A. H. Near, president of the organization for 1938-1939, together with the other national officers and corps area delegates, reported on the work and progress of the A.R.A. for the year. Lt. Col. H. H. Young, Chief of the Reserve Division, announced the extension of the cross-country limit to 500 miles for inactive status training and the new regulation which discontinues the signing of releases for all flights involving training duty. He also told of the new BC1-A's which are now on order for the Reserve and are scheduled for delivery sometime in November.

The Council voted unanimously to endorse and support the Flight Officer Bill which was passed by the Senate as S. 2225 in August and is now before the House Military Affairs Committee. This bill provides for appointment in the Regular Army in the grades of Junior Flight Officer, Flight Officer and Senior Flight Officer, corresponding to the first three commissioned grades of Reserve Officers, who are now on extended active duty or are eligible for such duty, with credit for prior service on extended active duty.

THE Council will also continue efforts to secure an amendment to existing legislation to provide compensation for death and disabilities sustained prior to July 15, 1939, under direction of the Association's new Judge Advocate, Colonel Mason. The Council passed a resolution recommending that the present policy of placing Reserve Officers on extended active duty be discontinued at the expiration of current appointments of officers now on extended active duty and that all eligible Reserve Officers be given four days active duty per month with their own tactical squadrons. It is felt that proper efficiency in the Air Reserve will not be secured until a definite year-around training directive can be maintained, which can be accomplished only through a pay basis for inactive status flying training.

Such a revision would mean that the Reservists would be almost as efficient as regular Army Squadrons, thereby relieving the necessity for large regular Army air force and the huge expenditures required to maintain same. In regard to the size of our regular air force, the Council went on record for a strength of 10,000 military airplanes and 20,000 pilots.

Although subject to Corps Area and Local Association action, which is expected to concur, the Council voted to raise the annual dues from $1.00 per year to $3.00 per year in view of the fact that previous dues have been inadequate for the effective work of the Association, which now boasts more than 800 paid-up members.

At the annual banquet, Major General H. H. Arnold explained the current Air Corps expansion program. Other addresses were made by Honorable F. Trubee Davison, former Assistant Secretary of War, Mr. William Stout, Mr. Gill Robb Wilson and Lt. Col. H. H. Young, Chief of the Reserve Division. Lowell Thomas and Casey Jones were toastmasters.

National officers elected for the coming year are as follows: Captain Brintnall H. Merchant, president; Major Peter C. Borre, senior vice president; Lt. Col. Joseph S. Marriott, second vice president; Colonel Charles W. Mason, judge advocate; Lt. T. Q. Graff, secretary; Capt. H. M. Cronk, treasurer.

National Headquarters will be continued at the Washington office of the National Aeronautic Association, 1909 Massachusetts Ave., N. W., Washington, D. C.

Lieutenant Al Near, president of the National Air Reserves Association (left), and Captain Casey Jones talking the situation over while Captain Edward L. Smith of the 2nd Corps Area Air Reserve Association looks on.

Flivverplane Vacation

Texas to Northern Minnesota is a "fur piece," especially if you only have eight days off; a man and wife discover it's cheaper to fly than drive their automobile

Phene C. Williams

I RECEIVED my private certificate this year after 40 hours of solo and bought a used Piper Cub. Flying after working hours and over week-ends it was a simple matter to achieve this ambition of long standing. Of course there were studies along with the flying. There were Civil Air Regulations to learn. But I studied the required work with interest; and the regulations, as far as I'm concerned, are just as important as knowing how to fly.

From the day we bought our airplane, my wife and I began talking a vacation by air to northern Minnesota. When we first began to mention the idea to friends, they would exclaim: "Why, man, you're crazy! You can't afford it!" Relatives and other friends would question the advisability of flying such a long distance in a light plane, and would hang crêpe generally. But we made up our minds to do it anyway. Much to my own personal enjoyment and satisfaction, we proved they were talking and advising on a subject they knew nothing about, and were going along on entirely false and pre-conceived notions that seem to be firmly entrenched in the average citizen's mind.

We did make the trip. We got up and back on schedule, did all we desired to do, had the time of our lives, and it cost us only $43.17, with only $22.00 going for gas and oil. Try making a round-trip of 2,388 miles in an automobile with only eight days to do it in and for $43.17! You can't do it!

Before taking-off on our "flivverplane vacation" we had a lot of fun making preparations, assembling sectional maps and planning the itinerary with careful thought, being sure that we would have a landing field at least every fifty miles during the entire flight. So by Friday night, August 4th, we were all packed and ready for an early take-off at sun-up Saturday morning — our first honest-to-goodness cross-country trip ahead of us. We kept a complete log of the trip—it being our first, and should you be an old pilot, it might bore you to tears or maybe remind you of your own first big cross-country; if a novice, it might encourage you to hasten the day when you make your own "first" in your own ship. But the main thing is, take it from us, a couple of average people with an average pocketbook, park your auto when you've got any distance at all to go and get up in the air, far from the hazards of the highway. Not only will "the more abundant life" open up before you, but you'll actually save money! And the next time we go on our vacation, and start considering an automobile trip, all we will have to do to is to get out the following log, and it's a hundred to one we'll park the old jaloppy in the garage where it belongs.

AUGUST 5th. Left Hampton Field, Dallas, flying north. Passed over Sherman, Texas. A small airport but with good paved runways. Crossed the Red River into Oklahoma. Crooked, treacherous looking and muddy stream, but beautiful from the air. We are already sure that this will be one of the greatest experiences of our life—an experience that the average man actually believes beyond his grasp. At 7:10 a. m. over Durant, Oklahoma. A clean looking town with a fine airport. Just below us the State Fish Hatchery. Sight-seeing from our little Cub is really something. You are impressed with the fact that you can see everything there is to see on the multi-colored geography below. How different from auto sight-seeing!

We made our first landing at Atoka, where we had to tank up on automobile gas. The field had been burned off and is as smooth as a hog wallow. They meant well, however. Leaving Atoka we were conscious of the auto gas but it took us out of the field and over the mountains in a hurry. I believe our little engine would get along on kerosene! We landed at McAlester. Good airport, but again no gas on the field. Do these towns expect to get in on the rapidly growing flying business without offering the most meager services?

As we pulled up and away from McAlester we discovered that our sectional map for this part of the route was missing. As a result we flew strictly by compass, our first experience in that art, and with a degree of uncertainty. High across the Canadian River, cutting through broad acres of glistening sand stretching as far as the eye can see. We feel secure as we sighted what we believed to be Henryetta on the banks of the North Canadian, that looks like a dark brown snake gliding through the trees. And speaking of trees we had no idea Oklahoma had so many. We passed over acres and acres of forest on mountains and in lowlands, which looked as though they had never been penetrated. In sharp contrast is the vast prairie land and level ranges in the northern part of the State.

At 10:15 we were over Okmulgee, looking for the airport, finally landing in a farmer's pasture who tells us it's "over yonder", so off again and on to the airport for gas. It's hot as blazes and no let up on the ground from the August sun.

Roughest air of the trip from Okmulgee to Coffeyville. Over Tulsa, the oil center, with its tall spires and impressive buildings, truly a beautiful and thriving city. But its black gold has robbed the landscape of much of its natural beauty, though enriched the State. A little after noon north of Bartlesville, looking down on beautiful open range country with herds of cattle grazing in every direction, the whole countryside one big landing field. Only 12:45 and on the ground at Coffeyville, Kansas, the third State we have been in since our journey commenced early the same morning! Coffeyville has a well improved port with excellent service. A happy contrast to some.

Leaving Coffeyville we opened our sandwiches and, with hot coffee, partook of our first meal in the air. Tourists in the modern manner. Prosperous looking country below us, excellent crops. Then into Chanute, another splendid airport, where we refueled and checked the ship.

LEAVING Chanute around 2:30 we ran into light rain twenty minutes out—our first of the trip. But flying was smooth and we soon were out of it into bright sunshine. Over Garnett, Kansas, via the "iron compass" route for during the rain our compass didn't function, thence to Lawrence for gas. One of our main impressions is that most of the airports we have visited so far have nice, clean restrooms. Away from Lawrence and can see Kansas City in the distance, but not for us. Instead, up the beautiful

Missouri River over Leavenworth, to get a good view of the Federal Pen, where we look right straight down into its walls but no one in sight. Over great green orchards toward St. Joseph, where we land on a new airport with concrete runways. Again we are thankful for splendid service. Up and away again at 5:15, across the Missouri River towards Atlantic, Iowa, which will be our fifth State. Never again by auto, despite the fact that our compass is acting up since the thunderstorm and we are flying by instinct. We land at Atlantic, just sixty minutes short of our first planned stop for a visit with relatives at Fort Dodge. However, the clouds look threatening and a wind is blowing up so we decide to stop for the night.

We had just landed and staked the plane down for the night when two boys drove up in a Ford of ancient vintage. This relieved our minds for we were wondering how we would get to town before the rain began. The boys heartily agreed to furnish the transportation. At the hotel, we arranged with Jack the bell-hop to take us to the field early in the morning and he agreed just to see our little ship.

The greatest inconvenience to flying, we feel, is commuting between airport and town. Usually there are no regular facilities. However, we have been greatly impressed with the friendly people around airports and their sincerity in wanting to help the traveler around. So far we haven't suffered any appreciable delay and always there seems to be someone willing to take us where we want to go.

AUGUST 6th. While taxiing out to take off from the Atlantic field, a jack rabbit hopped along ahead as if to run us a race. He actually registered surprise mingled with disgust to see us leave the ground and quit the race, as he sat on the edge of the field scratching his fleas and panting for breath. This country as we proceed farther north is the richest and most fertile we have seen. The rain has left the landscape looking like a soft, green carpet of many shades, intermingled with brown squares. At 7:10 over Guthrie Center, still flying the railroad. With heavy rain clouds above us and no compass, we fly at 500 feet, but not for long because it finally closes in and we land in a farmer's stubblefield. This gave us a chance to read the Sunday paper while waiting for the rain to stop. Soon, skies cleared somewhat and we bumped off the field, heading for Fort Dodge. Here lives our sister who religiously sends us clippings of all the airplane accidents that make the papers to convince us that flying is not safe. But after a brief visit with us on the airport, she was ready to take her first airplane ride! Away again, around another rain squall and on to Decker Field, Austin, Minnesota, via Eagle Grove and Mason City for a landing at 1:10 p. m. A crowd gathered around our trusty Cub to see what kind of freaks Texas produced. We learned a great deal here, among which the fact that Dallas has cowboys and two-gun Johnnies walking up and down the streets.

Off for Minneapolis at 1:30 and another delicious meal aloft. As we flew over the edge of the famous lake country we again were impressed with the beautiful countryside, the ever-changing colors and mottled terrain. Skirting Northfield we pass over Farmington and head for Wold-Chamberlain Field at Minneapolis. Too excited to write much in our log as we near the old homestead at Little Falls, our destination. So a brief stop and surprise drop in on friends at Minneapolis, thence 3:00 p. m. take-off for the final lap.

As we climbed for altitude we viewed this beautiful city with impressive buildings and the great Mississippi with its locks and dams. A beautiful, glistening lake to our left is the famous Minnetonka. So up the "iron compass" to St. Cloud over country that one must navigate cautiously because the ten thousand lakes look alike from the air and landmarks are confusing. Even with our careful observation we followed the wrong railroad track for a short distance before catching ourselves in error.

Mr. and Mrs. Phene C. Williams and their 1939 Continental powered Aeronca "Chief".

We like to fly in these northern States because practically every town and hamlet is airmarked, an invaluable asset to our kind of flying. Wish we had more of it down home.

SOON we find ourselves cruising into Little Falls, boyhood home of Lindbergh—the old home-town. It looks exactly like anybody's home-town, except for the landmarks so familiar to us, and for the first time my wife looks down from the air at her own birthplace. Years ago her parents traveled up into this beautiful country by covered wagon and here we were doing in three hours what required weeks of weary travel for them.

Having written ahead and advising we would circle the house upon arrival, they were to run out and show us where the best landing field would be. After we circled the house, our hosts hopped in their car and started up a nearby road; but we found a nice small field directly opposite the house, landed and taxied practically up to the front door. We staked the ship down right in the front yard! So you can readily appreciate the value of a small plane that can be landed almost anywhere any time. We were not at all weary and could hardly believe we had arrived feeling so relaxed and refreshed, remembering a previous automobile journey that made us seek out a bed immediately upon arrival.

From the time we landed until we again took-off for home, we carried aloft many people who had never before been in an airplane.

Monday came all too soon and we had to say good-bye. As we flew back along the same course we realized that we would never tire of this flying game, for the scenery is incomparable, and what an advantage we have up here with no traffic to dodge! From Little Falls to Minneapolis we wrote the inevitable postcards, endeavoring to describe the gorgeous scenery all around us.

At 5:25 we arrived over Minneapolis where we will spend the greater part of the week. As over other towns,

we cruised about inspecting the sights and places we did not know existed. If you want to discover all over again the world in which you live, get up in the air!

During our visit in Minneapolis we enjoyed fishing and other outdoor sports for which this section of the country is noted. It is fascinating to locate new lakes from the air, then travel as closely as possible to them by automobile, walk the rest of the way and fish in newly found waters. Sometimes it is even possible to land a light plane right on the shore of many of these lakes. At Minneapolis, as at our other stops, we planted the "flying bug" in many young hearts and minds.

ON August 11th at about noon, with a nice strong tail wind, we took off from Wold-Chamberlain Field for points South. In about forty-five minutes we arrived at Austin's Decker Field, where the field manager, Mr. King, was anxious to take us into town for luncheon. Here, as on practically all the airports, we found gracious service and splendid accommodations. After a delicous and delightful meal we were on to Eno Field, Fort Dodge, Iowa, for a 3:45 p. m. landing and one of the most interesting adventures of the entire aerial Odyssey.

As we taxied up to the gasoline pump, out came a man to meet us. After coming to a stop and cutting the switch, we became acquainted with Mr. Ellis E. Eno, who asked if we would be interested in trading off our airplane. We inquired as to what he had for trade and learned he had a buyer for a Cub just like ours and would give us a good trade on a 1939 Aeronca Chief. In about five minutes time we swapped, and were the proud owners of a later model ship! After an hour of instruction and check flying I could handle the new acquisition with as much confidence as the old Cub.

August 12th saw us retracing our path from Fort Dodge to Atlantic, St. Joseph, Lawrence, Chanute and into Coffeyville for the night. Splendid service everywhere. Some stops are not necessary but it's great fun to land and take off again in our new Aeronca and besides we are firm believers in keeping the gas tank full.

Up early on the 13th, leaving Coffeyville at 6:10 a. m., down over the Oklahoma cattle range country, Tulsa, into Okmulgee for gas. On across the winding Red River into Sherman and Texas once again. The home port at Dallas was made exactly at 11:00 a. m., well ahead of schedule. Our eight-day "flivverplane vacation" had ended.

Our first of what we hope will be many long and pleasant cross-country trips proved, above all else, that an airplane, if handled according to the rules and regulations, is not only as safe as any mode of travel, but within the reach of the average man or woman who must watch their pennies.

LYCOMING BUSY ON ORDERS

• Recently placed orders from the Taylorcraft Aviation Corporation, the Piper Aircraft Corporation and the Aeronautical Corporation of America, totaling nearly 2,000 units, are keeping production schedules strong and steady at the plant of the Lycoming Division of the Aviation Manufacturing Corporation in Williamsport, Pa., Increasing popularity of the Lycoming O-145 series of 50, 55 and 65-horsepower engines for Taylorcrafts, Piper Cubs and Aeroncas is said to be responsible for the influx of orders.

Unique Weather Research at New Orleans

A NEW, comprehensive study of weather conditions in the United States which will help airline officials and private pilots to plan schedules and determine the most efficient flying levels, and which will also assist the Civil Aeronautics Authority in locating landing fields and in installing blind flying equipment, is now under way.

The Work Projects Administration has just begun an extensive examination and analysis of hourly weather observations from more than 200 airports throughout the country over a five-year period. The WPA weather bureau project, at New Orleans, Louisiana, which has already completed three important meteorological studies, is sponsoring this project which is being carried out under the direction of the United States Weather Bureau.

When it is completed the U. S. Weather Bureau will have in its files the most complete summary of weather conditions ever compiled, according to E. C. Thom, af Washington, a representative of the aerological division, who has been sent to New Orleans to start the work. The project contemplates the preparation of charts suitable for publication showing all of the weather elements over the United States.

A battery of 50 punch card machines and 10 tabulating machines, all manned by WPA "white collar" workers assigned to the project, are turning out punch cards at the rate of about 30,000 a day. Each card contains one hourly observation. Leslie Smith, supervisor of the project, estimates there are more than 10,000,000 of these individual observations to be thus reduced to punch card form.

Later the punch cards will be sorted by tabulating machines and the data reduced to tables showing visibility, the causes of low visibility such as fog, smoke, rain, snow and dust, the percentage of frequency, wind direction and velocity. These charts will show the effect of time on the elements.

WPA weather bureau project workers are no amateurs in tabulating meteorological records. Their first endeavor, a two-year study of oceanic weather, resulted in compilation of an atlas of climatic charts of the ocean, a volume which already has received international praise. By tabulating about five and a half million weather observations taken on ships at sea during a period of half a century the WPA prepared charts showing average marine weather conditions of the entire globe.

Later the workers completed a tabulation of rainfall over the United States which showed weekly compilations of average precipitation for every State in the Union, and summarized prevailing wind conditions in the upper air strata.

Until recently the project was technically supervised by W. F. McDonald, former chief of the U. S. Weather Bureau in New Orleans, and now special assistant to the chief of the U. S. Weather Bureau in Washington. Mr. McDonald conceived the idea for a WPA project to study weather data while he was serving as head of the marine weather division in Washington a number of years ago. The New Orleans project is the only one of its kind in the country.

THE Sky's the Limit

BY BILL GREEN

EDITOR'S NOTE: We have been searching around quietly for a qualified observer to write "of shoes and ships and sealing wax and cabbages and kings" insofar as private flying is concerned. We found one. He is Bill Green of Tulsa, Oklahoma, who is so well known as a pilot and successful business executive he needs no introduction. Bill doesn't pose as an expert on aeronautics; yet we know of few pilot-owners as sound, as observant or as close to the real pulse of private flying. His Seismograph Service Corporation, with business all over the world, owns and uses Cessnas, Wacos, Fairchilds, Stinsons Spartans and Beechcrafts. Inasmuch as we have given him carte blanche with the "sky the limit", there's no telling what you'll find in this column. We believe it will provoke thought, breed argument, prove informative and contribute to progress.

WE were in New York the other day. Friend Roy McGuire, who is especially well known throughout the Southwest, whose Monocoupe has more instruments in it than an airliner, took us around to see Sherman Fairchild's 24 Ranger job. This ship is equipped with Luis de Florez' automatic pilot, a device that weighs only eight pounds completely installed and provides a most amazing performance. We took the ship off and, from the moment we left the ground, no one touched the controls until we were landing. Briefly, it consists of a turn indicator of the conventional type, which directly actuates a small, frictionless air valve. This valve is hooked up through a Venturi to a very small cylinder and piston, actuating a tab on the rudder. Since a Fairchild is fairly stable and can be flown with the rudder alone, no other control is required for maintaining a perfectly straight course. For ships not as stable as the Fairchild, the same arrangement is worked on the ailerons by means of a pendulum instead of the turn indicator. Rigged up on a Fairchild 22, the ship is almost entirely automatic.

We believe if the gadget were orientated properly, it could blind-land itself. Identical cans with small orifices attached to the two sides of the cylinder provide memory for the device so that if you suddenly maneuver the ship to make a partial turn or correction, the ship will return to its previous automatically held course, unless the ship is maintained on its new course for about half or three quarters of a minute. This is a marvelous feature since sudden gusts, which put a wing down or throw the ship about, are corrected for completely. We flew all over Long Island for approximately an hour, investigating the action of this device, and as far as we could determine, there is absolutely nothing wrong with it. We understand the device will soon be offered to the public. It certainly should be invaluable at least for holding you on course while you look at your map, light a cigarette or do any one of the myriad of little details required or desired.

The controls operate on tabs and do not affect the ordinary control of the airplane so that in emergencies or when desired the pilot may take over without disconnecting the unit, although, by pulling a ring in the panel, the entire device can be made inoperative and locked.

WHILE at Roosevelt Field, we had Bill Lear install one of his new automatic direction finders in our Beechcraft. This instrument is really a "honey" and certainly does everything except put the cat out at night. Riding along in the smoke over Pittsburgh, we were just barely able to see the ground and only knew when we passed Pittsburgh by watching our automatic indicator turn around and point backwards. A little book comes with the instrument. You can look under the State and town you are headed for and find all the radio stations listed. By adjusting the receiver to the frequency indicated the pointer starts pointing immediately toward the station and simply by heading the ship in the direction of the pointer you are on your way. The selectivity is excellent and stations only 3 or 4 kilocycles apart can be separated easily with minutely accurate indications instantly available.

The small AMR-1 receivers recently announced are "hot stuff", too. We installed one of them for a stand-by and in fact it is so good we use it most of the time. It operates off its own dry batteries; and since the batteries will last about as long in use as they do when not in use, it doesn't hurt to operate it most of the time. This receiver is so selective that on practically all of the range stations it can be adjusted to cut out most of the beacon signal when the station is broadcasting weather or answering your call. This renders the extra weight and expense of a range filter unnecessary. Especially for travel in the North and East it is now almost imperative that people doing much flying be completely two-way radio equipped. It will give you the undesirable thrill of a lifetime to attempt going into Chicago, Cleveland, Cincinnati, Newark or other large terminals without radio. Furthermore, you are quite likely to get your tail or wings clipped.

PARENTHETICALLY, we had the privilege of meeting Oley Olsen and Chick Johnson, the famous Broadway show producers. These gents have a host of friends in the flying game. They fixed it up so that a pair of us could see their latest hit "Hellzapoppin" from behind the curtain. This was one of the highlights of the trip East. You can only imagine the complications that go on behind the scenes. The audience only sees a small part of the show. We can't guarantee that Oley and Chick will fix you up if you drop in on them but we can certainly recommend the show, and if you are in New York by all means see it.

(Continued on Page 26)

News of the Month In Review

MANUFACTURERS

RECENT AWARDS

• A contract totaling $6,963,292 has been signed by the War Department for the purchase of airplane engines from the Wright Aeronautical Corporation, Paterson, New Jersey.

Two types of engines are included in the contract. These are as follows: A type designated as the R 1820-65 and rated at 1,000 horsepower, designed for powering the Boeing flying fortresses B-17-C; and the R 2600-9, rated at 1,500 horsepower, designed for the new B-25 airplane, a two-engined mid-wing, all metal medium bomber, now being manufactured by the North American Aviation Corporation, Inglewood, California.

• The following contracts have been awarded by the War Department for the Air Corps during the period of September 16-30, 1939, under the 1939 Procurement Programs:

Propeller and control assemblies—to the Hamilton Standard Propeller Division of United Aircraft Corp., East Hartford, Conn. $964,596.00

Wheel and brake assemblies—to the Goodyear Tire and Rubber Co., Akron, Ohio ..... $ 98,235.90

Spare parts for planes—to Seversky Aircraft Corp., Farmingdale, L. I., N. Y. ..... $ 51,683.32

• War Department contracts totaling $833,880 have been entered into with the Aviation Manufacturing Corporation, Lycoming Division, Williamsport, Pennsylvania, as follows:

1. Purchase of Model R 680-9 engines for installation of Stinson O-49 airplanes totaling $340,500. This engine is of 280 horsepower and will be installed in Stinson O-49 airplanes which are being built for operation out of small fields in conjunction with liason between the Air Corps and ground troops of Corps and Divisions. The Stinson O-49 is a two-place observation monoplane.

2. Purchase of R 680-11 engines for installation in Stearman type PT-13B airplanes at a total cost of $493,380. This engine is of 220 horsepower and will be installed in the Stearman Primary Trainer for use in primary training at the Civilian Flying Schools throughout the country being operated in conjunction with the Air Corps Expansion program. The plane is a two seater biplane, having a speed of 125 miles per hour and endurance of four hours.

FAVORABLE EARNINGS REPORTED

• Favorable earnings were reported by two aviation companies which issued financial statements for the first nine months of this year.

• North American Aviation, Inc., showed a consolidated net profit of $5,049,617 after Federal income taxes and other charges. The net, equivalent to $1.47 each on 3,435,033 shares of capital stock, compared with $1,014,491, or 29 cents a share, in the same period in 1938.

Sales in this year's period increased to $20,995,993 from $5,946,987 in the corresponding nine months of last year.

• A net profit of $3,087,083 for the nine months was shown by the Bendix Aviation Corporation after deductions for depreciation, Federal income taxes and other charges. This was equal to $1.47 each on 2,097,663 shares of capital stock and contrasted with a net loss of $406,205 in the nine months ended on September 30, 1938.

• Thompson Products, Inc., and Subsidiaries—September quarter: Net profit, $292,618, equal after dividends paid on $5 preference stock, to 89 cents each on 293,290 shares of no par common stock, against $320,900, or $1.06 a common share, in preceding quarter and $165,454, or 53 cents a common share, in September quarter of 1938. Nine months ended September 30: Net profit, $938,673, equal to $3.02 a common share, compared with $277,552, or 83 cents a share, last year.

CLAUD RYAN'S NEW FACTORY

Shown above is the first air view of the Ryan Aeronautical Company's new $150,000 factory recently completed at Lindbergh Field, San Diego, California. The company has delivered its first production order of Ryan YPT-16 primary trainers to the U. S. Army Air Corps. The new factory contains 55,000 square feet of manufacturing space.

VEGA APPLIES FOR STOCK LISTING

• The Vega Airplane Company will apply for listing on the Los Angeles and San Francisco stock exchange of 460,000 shares of its common stock, it is announced by Mac Short, president of the company.

The Vega Airplane Company was organized and incorporated under the laws of the State of California on August 17, 1937. It operates from its owned plant at Burbank, California, and is engaged in the design, manufacture and selling of various types of airplanes and airplane parts. The Vega Company is a subsidiary of the Lockheed Aircraft Corporation, which owns 231,667 shares of the 460,000 shares to be listed.

Completion of manufacturer's tests on the new Vega Starliner transport plane is expected by the end of October, after which the plane will be submitted to the Civil Aeronautics Authority for Federal Acceptance tests.

This was announced by Mac Short, president of the Vega Airplane Company.

Tests conducted by Vega pilots and engineers have been "completely satisfactory to date", Short said, and it is anticipated these ground and flight tests will be completed about November 1st.

UNITED AIRCRAFT FINANCIAL REPORT

• Net profit of United Aircraft Corporation and its subsidiaries for the quarter ended September 30, 1939, was $2,120,617.42, which is equivalent to 80 cents per share on 2,649,437 shares outstanding. Total net profit for the nine months ended September 30, 1939, amounted to $5,799,307.30, which is equivalent to $2.18 per share, and is after provision for Federal Income Taxes at 19 per cent of taxable net income, less credit of 2½ per cent of dividend paid.

INDUSTRY WIDELY REPRESENTED AT WRIGHT'S SEMI-ANNUAL LECTURE COURSE

• Almost 100 representatives of the airlines, plane manufacturers, airports, Army, Navy, Coast Guard, and C.A.A. recently completed Wright Aeronautical Corporation's semi-annual lecture course in the servicing and maintenance of aircraft engines and accessories.

Designed to present up-to-the-minute data on aircraft, the course was the third in a series started last fall. Lectures were given by Wright officials and executives, each a specialist in his particular field. Enrollment in the course was by invitation, and the response received indicated the continued popularity of the lectures throughout the industry.

The value of the course was pointed out by George Chapline, vice president of the company, who stated that unlike the automobile industry, "aviation does not bring out models on a yearly basis," but instead introduces "improvements into current production as soon as they have been tested. Progress has been so rapid during the last few years," he said, "that it has been difficult to keep abreast of developments."

C-W BUYS PROPELLER COMPANY

• Guy W. Vaughan, President of Curtiss-Wright Corporation, has announced the purchase of the hollow steel blade manufacturing division of the Pittsburgh Screw & Bolt Corporation, of Pittsburgh, Pa., and its absorption by the Curtiss Propeller Division of Clifton, N. J. The latter is a major manufacturer of electric propellers for military and commercial planes operated in this country and abroad.

"The increasing trend in the aviation industry toward the use of hollow steel blades, because of their lightness and greater durability, and our plans for developing a self-contained propeller manufacturing

division," said Mr. Vaughn, "make this purchase a logical and important addition. It supplements ideally our own propeller division's mass production of aluminum alloy blades for all types of airplanes."

This acquisition provides the Curtiss Propeller Division with manufacturing rights on the only hollow steel type of aircraft propeller in service in the world.

GOVERNMENT ORDERS FIRST SAILPLANE

• Shipment of the first sailplane ever ordered directly by the United States Government for the National Youth Administration has just been made according to Hawley Bowlus, President of the Bowlus Sailplane Co. of San Fernando, California.

Receipt of this order was hailed by soaring enthusiasts as further recognition of the sailplane as an adjunct to the aviation training program for American youth. For a number of years proficiency in soaring has been one of the requisites for a transport pilot's license in several foreign countries. Now that motorless aviation has been recognized by the United States, it is felt that this is the forerunner of quantity orders for this type of training ship.

The newly completed soaring plane, known as the "Bowlus Baby Albatross", is a duplicate of the one in which Woodbridge P. Brown of San Diego recently set a cross country record of 263 miles from Wichita Falls, Texas, to Wichita, Kansas.

A. C. C. DESIRES C. A. R. CHANGES

• Thirty manufacturers were represented on the commercial airplane engineer's committee of the Aeronautical Chamber of Commerce of America, which, in a two days' session in Washington on October 12th and 13th, submitted to the Civil Aeronautics Authority a long set of recommendations dealing with Civil Air Regulations. Representatives of the National Advisory Committee for Aeronautics, the Air Transport Association, leading airlines and the Air Line Pilots' Association also participated in the discussions. Including the C. A. A. technical officials, a total of 110 persons attended the sessions. J. T. Gray, chief of the aircraft air-worthiness section of the Civil Aeronautics Authority, presided. R. W. Ayer, manager of the technical department of the Aeronautical Chamber, served as chairman of the general and administrative committee. Three sub-committees handled the details in their respective fields.

During the three months prior to the meeting the Civil Aeronautics Authority sent out 14 questionnaires accompanied by Aircraft Airworthiness Reports, and the manufacturers and operators thus had an opportunity to submit concrete recommendations. As a result practically everything in the Regulations, including general policy of the C. A. A., received a thorough discussion during the conference.

PROPOSED STOCK INTERCHANGE BETWEEN AIRCRAFT ACCESSORIES AND SOLAR AIRCRAFT

• Plans for an interchange of stock between Aircraft Accessories Corporation of Glendale, California, and Solar Aircraft Co. of San Diego were revealed recently with the filing of an application for hearing with the State Corporation Department in Los Angeles.

Under the plans as outlined, Aircraft Accessories will become an operating subsidiary of Solar Aircraft Co., resulting in the formation of the largest secondary aircraft company on the Pacific Coast, and one of the largest in the Nation, with an estimated sales volume of approximately $2,000,000 a year.

In addition to the Army, Navy and Air Corps, customers of the new combine will include practically every major aircraft manufacturing company and airline in the United States and several large foreign companies. Manufacturing facilities will be divided among three plants —Solar in San Diego, Aircraft Accessories in Glendale and the Siebenthaler Manufacturing Company plant in Kansas City, Missouri.

Among the products manufactured by the new unit will be exhaust manifolds, cabin heaters, fuel and oil tanks, hydraulic actuating equipment for landing gear, wing flaps, complete hydraulic installations for military aircraft, de-icer spinners, a wide range of radio and direction finding devices and other miscellaneous accessory parts.

Identities of the two companies, it is understood, will be retained and each will continue its present plan of operations, with an interlocking of officials and directors.

STINSON SALES

• Sales of six Stinson Reliants to three major airlines have been announced by William A. Mara, Vice President in charge of sales of the Stinson Division of Aviation Manufacturing Corporation.

Pan American Airways are having four Reliants especially fitted for use in providing instrument flight training for their pilots. An innovation in blind flight instruction will provide three complete sets of controls so that the instructor may train two pilots at the same time.

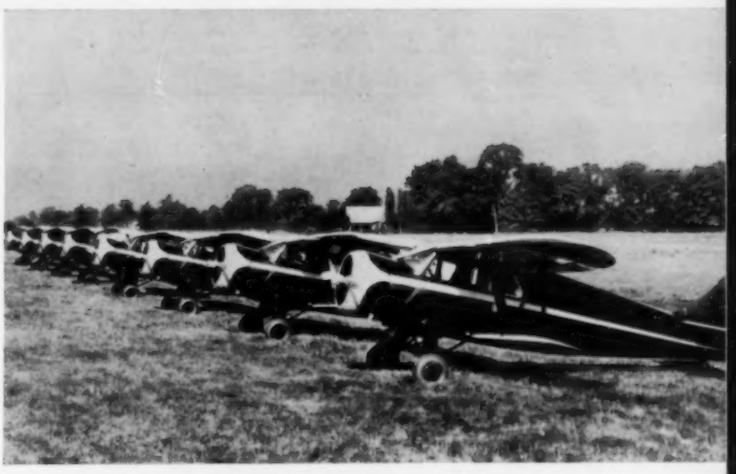
American Airlines has ordered another Stinson Reliant powered with a 350 horsepower Wright engine. This brings America's Stinson fleet to a total of five planes, all of which are used for instrument training.

The Boeing School at Oakland, California, which trains personnel for future work on United Air Lines' system, also purchased a Stinson Reliant powered with a 260 horsepower Lycoming engine for instrument training work.

A 5-passenger Stinson Reliant with a 260 horsepower Lycoming engine, especially equipped for newspaper work and for aerial photography, has just been purchased by the Gannett Company of Rochester, New York, newspaper chain publishers. The new plane will be used by the Times-Union and the Democrat Chronicle of Rochester, New York.

Among nationally known schools which have recently placed Stinson "105's" in service are—The Hancock School of Aviation at Santa Maria, California; The Boeing School of Aviation at Oakland, California; The American Institute of Aviation at Detroit, Michigan, and The Brayton Air College at St. Louis, Mo.

A fleet of six Stinson "105's" recently left the factory at Wayne, Michigan, destined for Brazil. Three 5-passenger Stinson Reliants have also been shipped this year to Moura, Andrade & Cia, Stinson Distributors at Sao Paulo.



WACOS FOR THE C. A. A.

The Waco Aircraft Company has just delivered eight Model C five-place cabin ships to the Civil Aeronautics Authority. Powered with 330 h.p. Jacobs engines turning Hamilton Standard controllable pitch propellers, these completely equipped Wacos will be used by the Air Safety Board, the Airport Section, the Air Carrier Inspection Section and the Airways Engineering Division. All are expected to be based in Washington.

NEW LITERATURE ON LYCOMING

• New literature setting forth complete details and specifications on the Lycoming 7 and 9 cylinder engine is now available to the many pilots and operators who have been requesting it. New folders on the R-680-E Series Engine and the R-680-D Series Engine are ready for immediate mailing, while the R-530-D Series Engine brochure is in the process of preparation and will be ready shortly. All who are interested may secure this literature by writing to the advertising department of Lycoming Division of the Aviation Manufacturing Corp., Williamsport, Pa.

BARKLEY-GROW SALES REPORTED

• In the last eight months Barkley-Grow Aircraft Corporation has sold seven ships to the following:

Barkley-Grow T8PI Ship, Serial No. 2, was sold to the Peruvian Government, Commander Humberto Gal'lino and Captain Victor Gal'lino acted as co-pilots for a projected non-stop flight from New York to Lima, Peru. The Gal'linos left New York on October 29th, landing at Salinas De Punta Arenas, Ecuador, some 3,300 miles from New York City, breaking all Central and South American long distance records—twenty-six hours and five minutes after the take-off. The ship is licensed for 8,750 pounds gross weight, but took off with a gross weight of 14,000 pounds, the overload being caused by the large amount of gas carried. The remarkable stability and strength of the

plane have been proven by this flight. This ship will eventually be converted to a personal ship for the President of Peru.

Other sales include: three Transports to the Yukon Southern Air Transport, Ltd., a Canadian airline operating between Edmonton, Alberta, Canada, and the Yukon over extremely hazardous terrain; a Transport to the Royal Canadian Air Force for use as a personnel transport; a Serial No. 9 Seaplane to Rear Admiral Richard E. Byrd for his fifth Antarctic expedition to the South Pole; and a Serial No. 9 Seaplane to the Standard Oil Company of New Jersey for use in Colombia, South America.

The Barkley-Grow Demonstrator, equipped with an Executive Club Interior, will be on demonstration at the Chicago Municipal Airport during the American Petroleum Institute Convention in Chicago, under date of November 13th to 17th, inclusive. Frank Cordova, an internationally known pilot, will be in charge of the plane.

BRAZIL BUYS STEARMANS

(See Front Cover)

• Announcement has been made of an order for a new fleet of Stearman primary training planes amounting to approximately $300,000. This is the second sizeable order that Stearman has received from the Brazilian Army Air Corps in the past few years. The first was for a fleet of advanced training and expeditionary type planes, Model 7603.

Stearman trainers are also in service in the Argentine Navy, in the Philippine Army Air Corps—which has just received delivery of its third Stearman order and in the Cuban air force, as well as in the U. S. Army Air Corps and the U. S. Navy. The War Department recently announced award of a contract amounting to $2,843,405 for additional Stearman primary trainers for the U. S. Army Air Corps.

Work will begin at once on the new Brazilian planes at the Stearman Division Plant of the Boeing Company in Wichita, Kansas. Designated technically as Model A75L3, the planes will be equipped with Lycoming R680-B4D engines and McCauley forged steel propellers. They will be delivered during the spring of 1940 to Campo dos Affonsos at Rio de Janeiro, which is the Brazilian training center corresponding to Randolph Field of the U. S. Army Air Corps.

MONOCOUPE PRICE CUT

• In keeping with the recent trend of offering separate models designed to appeal to both the buyer who wants the lowest possible initial cost and the individual who prefers the finest de luxe equipment, appointments and finish, the Monocoupe Corporation is introducing the new 90A Standard Model at a drastic price reduction. The 1940 Standard 90A Model now sells for $700 less and the 1940 De Luxe Model for $500 less than previous models.

Both the Standard and De Luxe Models incorporate an unusual amount of standard equipment. Besides a complete set of flight and engine instruments, both models include flaps, Goodyear airwheels and brakes, steerable tailwheel, parking brake, dual controls, large baggage compartment, door locks on both doors, ventilators and provisions for heater. The De Luxe Model also features Hamilton-Standard metal propeller, wheel pants, navigation lights and glossy finish.

SEVERSKY NOW REPUBLIC AIRCRAFT

• Seversky Aircraft Corporation, long recognized as one of the Nation's most successful builders of high speed military aircraft and executive-type private airplanes, has announced change of its corporate name to Republic Aviation Corporation.

The first contract to be undertaken in the name of Republic Aviation Corporation will be execution of a $3,478,000 order for military pursuit planes, which was announced by the War Department on September 15th. This is the largest single contract ever won by the Farmingdale Corporation.

Employment at the plant in Farmingdale was climbing toward a new high level, it was announced, and production on current business will continue well into 1941, irrespective of additional contracts.

All planes on order are of a military type, but do not involve contracts with belligerent nations.

DOUGLAS EMPLOYMENT GAINS

• Commercial airplane orders from airlines in the United States, recently added to the Company's backlog, will help provide jobs for 2,500 additional men at the plants of the Douglas Aircraft Company in Santa Monica and El Segundo, California. Plans have been made to employ approximately 400 new men a week for the next six or seven weeks. Experienced aircraft mechanics, or craftsmen competent in related trades, will be used.

These additional 2,500 employes will bring the company's force close to 12,000 men and women, and make its payroll total approximately $1,700,000 a month.

VENEZUELAN MILITARY MISSION VISITS LOS ANGELES SEEKING MILITARY AIRPLANES

• The Republic of Venezuela's first military mission to the United States since the recent Pan American conference in Panama arrived in Los Angeles recently to inspect American military aircraft with a view to possible future purchases. Lt.-Col. Francisco Leonardi and Captain Jorge Marcano will remain in Southern California for a week or ten days, and will visit several of the principal plane manufacturing plants. Accompanied by Carlos Adrianza, Venezuelan representative for the Lockheed Aircraft Corporation, they visited the Lockheed factory in Burbank. After a few days in Los Angeles, they plan to fly to San Diego for a tour of factories at that end of the State.

LOCKHEED SALES UP

• Net sales of $23,975,523 for the period ending September 30, 1939, have been announced. This represents an increase of 201 per cent over sales reported for the same period a year ago.

Deliveries are also well ahead of last year and the commercial production facilities of the factory in Burbank are working at almost peak capacity.

The company recently introduced the Lockheed Lodestar, a 17-place transport, and has already booked airline orders of more than $250,000 for this type.

New orders for three 12 transports, each of which will carry six passengers and a crew of two, have also been booked, adding approximately $160,000 to the sales total.

307 TESTS NEAR COMPLETION

• The Boeing Aircraft Company has announced that the company has nearly completed its extensive test program on the Boeing 307 Stratoliner, and that Civil Aeronautics Authority testing of the new transport will soon begin. The government test program is expected to require several weeks for completion.

Boeing is producing nine of the 33-passenger four-engine airliners, all of them with altitude-conditioning equipment for comfortable flight above the weather altitudes.

The Stratoliner flight test program, still under way, surpasses in scope even the comprehensive test program of the 74-passenger Boeing 314 Clipper. Not only has it embraced the testing of all the equipment involved in the plane's operation, and of all flying qualities, in both normal and abnormal flight altitudes and conditions, but it has also included complete testing of the novel cabin supercharging equipment. This equipment provides atmospheric conditions equivalent to low altitudes when the plane is operating at higher levels, in the 14,000 to 20,000-foot range.

The test program is being carried on with two different models involving various distinctions, among which are differences in vertical tail surface design and in type of landing flap. The new wing tip slots, improved fairing of wings to body, and the forward extension of the vertical fin are incorporated in both models.

SPENCER-LARSEN ABSORBS L. I. A. C.

• Arrangements have been completed for the absorption of the Long Island Aircraft Corporation, organized a year and a half ago to specialize in military work, by the Spencer-Larsen Aircraft Corporation. To carry out a production program for amphibions and seaplanes, the Spencer-Larsen Company also made arrangements to acquire the hangar-factory built for the Fairchild Airplane Manufacturing Corporation at Amityville, L. I., ten years ago as a seaplane base. The structure is being remodeled and will be completely equipped both for the production of metal planes and for a special type of construction to be used in the campany's commercial models.

DOUGLAS AIRCRAFT VOTES DIVIDENDS

• Douglas directors have voted a dividend of $3.00 per share, payable November 20th. Last year a similar dividend was paid.

Continuous demand for the company's commercial transport models, now practically the standard equipment on airlines the world over, was reported. More than 70 Douglas DC-3's and Douglas Sleeper transports have been ordered in the last few weeks.

FAIRCHILD SHOWS PROFIT

• For the nine months ended September 30, 1939, a Net Profit of $295,512 is announced. These figures are after provision for all Federal taxes. This is equivalent to 87c a share as compared to 76c a share reported for the first nine months of 1938.

Unfilled orders as of September 30, 1939, are $1,988,361, compared to $1,173,142 a year ago.

SCHEDULED AIR TRANSPORT

ANOTHER ALL TIME HIGH

• Another all time high for revenue passenger-miles flown on the domestic airlines was recorded in September, according to figures made public November 3rd by the Civil Aeronautics Authority.

During the period from September 1st to September 30th, inclusive, 69,082,813 revenue passenger-miles were flown by the 17 companies reporting their figures, an increase of nearly 40 per cent over September 1938.

Express flown during September also established an all time high both in pounds carried, which totaled 981,462 and in pound-miles flown, which were 536,701,889.

* * * * *

• Setting a new high for numbers of revenue passengers carried in a month, Eastern Air Lines transported 22,450 revenue passengers in October, Capt. E. V. Rickenbacker, president and general manager, reported. This passenger traffic volume represents an increase of 35 per cent as compared with October last year. It exceeds the number of passengers carried in March this year, traditionally the peak month for travel via Eastern Air Lines because of the fact that the company serves both coasts of Florida.

Revenue passenger-miles last month increased 38 per cent as compared with October, 1938.

* * * * *

Eastern Air Lines will observe two Thanksgiving Day holidays this year, insofar as culinary traditions are concerned. Meals served on The Great Silver Fleet November 23rd, the "new" Thanksgiving Day date and on November 30th, will have Roast Young Tom Turkey as the entree, with all the traditional trimmings.

* * * * *

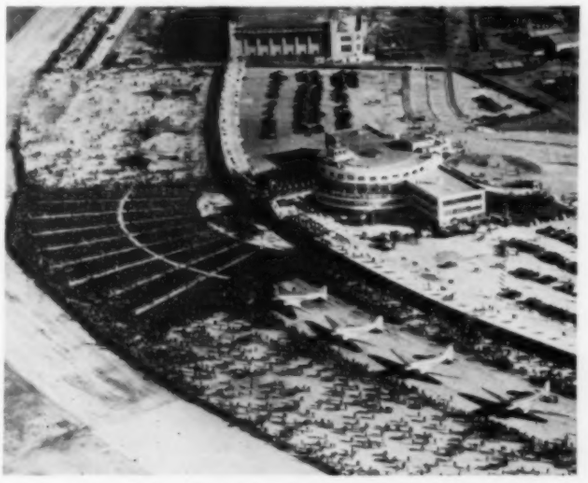
• To accommodate unprecedented passenger traffic, Eastern Air Lines' board of directors have approved the purchase of three more Douglas DC-3, twenty-one passenger airplanes for quickest delivery. The purchase calls for an expenditure of nearly $350,000, and follows closely a recent announcement by Capt. E. V. Rickenbacker, president and general manager, of the purchase of three Douglas sleeper planes at $122,000 each. The sleepers will be placed in service on the New York-Brownsville, Texas, run. Eastern Air Lines connects with Pan American Airways at Brownsville for Mexico and Central America.

E. A. L. NINE MONTHS' REPORT

• For the first nine months of this year Eastern Air Lines, Inc., made a net profit of $456,840.54 or $1.08 per share after provision was made for Federal income tax estimated at $160,000, it was announced in a report to stockholders for the nine months ended September 30, 1939.

This earning is more than three times greater than the earning for the first nine months of 1938, when a net profit of $137,588.13, or 33 cents per share, was earned on the same basis.

"Although the operations of Eastern Air Lines have resulted in a profit each year since 1935, the year 1939 is the first in which a profit was realized in *each* of the first nine months, including those of the third quarter," Capt. Rickenbacker emphasized in his report to stockholders. "This quarter, particularly the months of July and August, has always been the most unfavorable of the year with regard to earnings."



N. Y. MUNICIPAL AIRPORT DEDICATED
This striking aerial photograph shows the huge crowd assembled last month directly in front of New York City's ultra modern terminal building on the recently completed North Beach airport. Mayor LaGuardia made the dedicatory address.

PCA MAIL PAY CUT

• The C. A. A. have announced new rates of compensation for the carriage of mail on the system of Pennsylvania Central Airlines. The method of rate determination follows the precedent setup in the Northwest Airlines decision in abolishing weight credit trips and computing the rate upon the basis of all miles flown with mail. All of the new rates are effective as of November 1, 1939, and apply to direct airport to airport mileage.

For the company's route between Norfolk, Va., and Detroit, via Washington, Pittsburgh, Akron and Cleveland, a total of 544 miles, the Authority sets a rate of 13 cents per mile as against the 33⅓ cents for mail pay trips now paid. The opinion of the Authority points out that approximately 50 per cent of the company's mileage on this route has heretofore been on a weight credit basis and that the broadening of the mileage base by the inclusion of these schedules as mail pay trips results in a rate lower in terms of cents per mail mile than the rate which would have been necessary to yield the same total amount of mail compensation on the basis of the presently authorized pay mail miles.

PAA AND AMERICAN EXPORT FILE ON ROUTES

• Two important foreign extensions of the airlines of the United States are provided for in applications filed with the Civil Aeronautics Authority today. American Export Airlines seeks to amend its application for certificate of convenience and necessity already filed for European service, by substituting non-stop service between New York and Biscarosse, France, and on to Marseilles, and by seeking also permission to serve the northern route from New York to Southamp-

OPPORTUNITY

For

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PRIVATE FLYING

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AVIATION DEPARTMENT

PALM BEACH COUNTY FLORIDA

Address communications to: Wright (Ike) Vermilya, Jr.
Director of Aviation, Box 1926, West Palm Beach, Florida

ton via Botwood and Foynes. The company proposes to use three Vought Sikorsky flying boats.

Pan American Airways filed formal application for a new service between Los Angeles and Mexico City. The application says the company intends to begin the service with Boeing 307's, the sub-stratosphere pressure cabin airplanes which the company has had under purchase contract. With this equipment it proposes to make a flight leaving Los Angeles on Sundays, Tuesdays and Thursdays at 6:00 a. m., arriving at Mexico City the same day at 5:30 p. m., with one stop at 11:00 a. m. at Hermosillo, Mexico.

Alternatively the company proposes to fly DC-3 equipment on a similar thrice a week schedule leaving Los Angeles at 3:30 a. m., with stops at Hermosillo at 9:00 a. m., Mazatlan at 12:35 p. m., Guadelajara at 2:45 p. m., and arriving at Mexico City at 5:00 p. m.

The return schedules proposed are for Sunday, Tuesday and Friday.

UNITED TO TAKE DELIVERY OF SEVEN MORE MAINLINERS

• The addition of five 21-passenger Mainliners and two Sleepers will give United a fleet of 60 twin-engined transports.

The new Mainliners will be equipped with 1,200 horsepower Pratt and Whitney engines rated as the most powerful transport power plants at higher altitudes. The engines will be equipped with feathering propellers and the newly developed injection carburetor, which will give United the largest fleet of planes thus equipped in this country, according to President W. A. Patterson.

With the additional sleeper planes, United next spring will operate four sleepers nightly between the East and the Pacific Coast. The 21-passenger planes will be used to provide greater frequency of intercity flights. United's traffic this year has shown a 35 per cent increase over 1938, and the additional equipment, coupled with the expected traffic increase next year, is expected to boost United's flying to nearly 20,000,000 miles in 1940.

UNITED INCREASES AUTUMN FLYING SCHEDULES BY TWENTY PER CENT

• W. A. Patterson, President of United Air Lines, has announced that autumn schedules have been set up for 1,600,000 miles a month, the largest autumn mileage in the company's history. The operation calls for 20 per cent more seat miles than last year and follows a record-breaking summer. Because of increased industrial activity, which reflects itself in airline loads, United's seasonal schedules call for nine flights daily from Chicago to Cleveland and New York, two from Chicago to Philadelphia, and five westward from Chicago to the Pacific Coast. On the West Coast, United is flying nine flights daily between Los Angeles and San Francisco, three between San Francisco and Seattle and five between Portland and Seattle.

PCA'S TRAFFIC UP

• During October, Pennsylvania-Central Airlines carried 12,083 revenue passengers, a 22 per cent increase over the 9,935 passengers carried in October of last year, according to J. J. O'Donovan, vice president in charge of traffic. This is the sixteenth consecutive month that PCA has rceorded a substantial gain over the corresponding period for the preceding year.

More than 100,000 revenue passengers have been carried during the first ten months of this year. Through October, PCA has made a 42.69 per cent gain over the 70,744 passengers who were carried during the same period in 1938. 17,492,442 revenue passenger miles have been flown in the first ten months of this year, a 33.64 per cent increase over the 13,088,496 revenue passenger miles flown during the similar 1938 period. With PCA's new CAPITAL FLEET of 1940 Douglas DC3 planes soon to be delivered and to be placed in service next month, the company expects its traffic gains will continue.

CAPITAL FLEET TO FLY DETROIT-NORFOLK ROUTE

• Plans to place PCA's new $1,250,000 Capital Fleet in service on the Detroit-Norfolk air route about December 15th have been announced. Six 1940 Douglas transports will be delivered in November and four more in March. They will be placed on all schedules between Detroit, Cleveland, Akron, Pittsburgh, Washington and Norfolk.

NEW DOUGLAS PLANES FOR PCA

• A fleet of ten new Douglas DC-3 transport planes has been purchased and will soon go into service on PCA's routes serving 20 cities in eight different States. The twelve-ton, three-mile-a-minute ships, to be christened "The Capital Fleet", will accommodate 21 passengers and a crew of three—including two pilots and an air hostess.

Powered with two 1,100 horsepower Wright engines, the new planes will cruise at 180 miles an hour and will have a top speed of 230 miles an hour. According to C. Bedell Monro, PCA president, the use of a new propeller combination will result in PCA offering transportation in the world's quietest transport planes.

The interior design of these new transports has been acclaimed as the "world's most luxurious". Many refinements have been made in chairs, carpeting, sound-proofing, lighting, air-conditioning and vibration isolation.

The new ships will be equipped with every proved mechanical and navigational aid, including wing flaps, retractable landing gear, complete de-icing equipment, two-way radio communication and full-feathering hydromatic propellors.

C & S REVENUE BEST IN HISTORY

• A 30 per cent increase from 5,694,865 to 7,402,494 revenue passenger miles during the first ten months of 1939 was reported by D. D. Walker, vice president. During the period from January 1 to October 31, 1939, a total of 18,762 revenue passengers were carried against 14,979 for the same months in 1938. This is an increase of 25.3 per cent.

Mr. Walker also stated that the month of October was the best month the company has had in its history. The airline operated 100 per cent during the past 31 days..

BRANIFF OCTOBER PASSENGER TRAFFIC BREAKS ALL RECORDS

• During October Braniff flew a total of 2,095,218 revenue passenger miles, which represented a 12.41 per cent increase over September, 1939, the airline's previous record month, and a 23.47 per cent increase over October, 1938. For the ten months of 1939, ending October 31st, the airline had flown a grand total of 15,990,071 revenue passenger miles, a 48.96 per cent increase over the corresponding period of 1938.

Continued industrial expansion throughout the Southwest and growing traffic to and from Latin American countries were reasons given by Braniff vice president, Charles E. Beard, for the big traffic increases. A fleet of new, 21-passenger Douglas DC-3's will be placed in service on Braniff routes in December to accommodate anticipated traffic increases.

TWA TRAFFIC HIGHEST IN HISTORY

• Increases over last month and October, 1938, in every department, including passenger traffic, air mail and air express have been announced by V. P. Conroy, vice president in charge of traffic sales.

The passenger traffic was the highest for any month in the airline's history, with a total of 10,998,431 revenue passenger miles flown, an increase of 5 per cent over September and 45 per cent over last October.

Air mail poundage showed an increase of 6.5 per cent over September and 23.43 per cent over October, 1938, while the increase in Air Express in pound miles was .2 per cent and 30.4 per cent, respectively.

Conroy said he belived new developments in TWA's traffic outlook, including the purchase of a fleet of Boeing "Stratoliners" for service next year and the acquisition of Marquette Airlines, which is now awaiting approval of the Civil Aeronautics Authority, indicated an even brighter outlook for next year.

The purchase of Marquette will add three major cities to TWA's system—Detroit, Michigan, and Toledo and Cincinnati, Ohio.

TWA's quarterly report showed a net profit of $143,474 for the period ending September 30th, representing an increase of $134,500 over the net earnings of the second quarter.

AMERICAN AIRLINES EARNINGS

• Earnings of $964,283.34 for the nine months ended September 30, 1939, after provision for estimated Federal Income Taxes, as compared with net profit of $48,690.84 for the nine months ended September 30, 1938, were reported by C. R. Smith, president.

During the nine months' period of 1939, American Airlines transported 376,506 passengers, as compared with 249,396 passengers in the comparable nine months' period of 1939, an increase of 51 per cent.

Revenue passenger miles totaled 144,316,413, as compared with 98,893,841 in the corresponding period of 1938, an increase of 46 per cent. Revenue miles flown in the 1939 period amounted to 13,587,132, as compared with 11,242,028 for the same period in 1938.

Passenger revenue for the nine months of 1939 amounted to $7,452,209.44 as compared with $5,233,194.76 for the similar period in 1938, an increase of 42 per cent.

Guy W. Vaughan and Myron B. Gordon

Lymen S. Peck

Dr. Joseph S. Ames

PERSONAL NOTES

• Twenty years of successful business enterprise and 15,000 years of loyal employe service were recognized by the Wright Aeronautical Corporation on October 20th, when GUY W. VAUGHAN, president of the Wright Aeronautical and Curtiss-Wright Corporations, presented service pins to more than 600 employes at a luncheon held in the plant cafeteria. Exclusive of duplications, more than 1,700 service pins have been awarded to date by the company.

For the first time pins were given for 20 years of service. The 25 employes and executives who received them have been with the company since its organization in 1919. The total 15-year awards amounted to 34; the 10-year to 217; and the 5-year to 367.

Acting as master of ceremonies, MYRON B. GORDON, vice president and general manager, introduced Mr. Vaughan, who thanked those present for their years of faithful service and stated that the experience they had gained was valuable to themselves as well as to the company.

A highlight of the program came when Mr. Vaughan was presented with a 15-year pin by Mr. Gordon. Later, Mr. Vaughan in turn awarded Mr. Gordon with a 10-year pin.

• Aviation Consultants, Inc., announce that LYMAN S. PECK, who has been associated with Pan American Airways, Inc., for the past eleven years, has resigned to accept Presidency of Aviation Consultants, Inc. Mr. Peck was formerly Vice President and General Manager of Pacific Alaska Airways, Inc., a wholly owned subsidiary of Pan American Airways, Inc. He began his career in aviation as a pilot in the U. S. Naval Reserve Flying Corps during the World War, and has flown more than ten times around the world on United States and foreign airlines in connection with his various aviation responsibilities. He has also been General Manager of New York Airways, Inc., and Division Manager of Pan American Airways Company, both companies being Pan American owned.

Aviation Consultants, Inc., has a staff of consultants specializing in various phases of commercial and military aviation, including the development planning of airports, aircraft and aircraft engine factories, consultation on marketing of aeronautical equipment, furnishing of aviation personnel, sale of air transportation and reports and surveys of aviation enterprises.

• The National Advisory Committee for Aeronautics, at its meeting held in Washington on October 19, elected officers for the coming year as follows:

Chairman, DR. VANNEVAR BUSH, President of the Carnegie Institution of Washington, formerly Vice Chairman of the Committee;

Vice Chairman, DR. GEORGE J. MEAD, of West Hartford, Connecticut, a noted authority on aircraft engines;

Chairman, Executive Committee, DR. VANNEVAR BUSH (re-elected);

Vice Chairman, Executive Committee, DR. CHARLES G. ABBOT, Secretary of the Smithsonian Institution (re-election).

Dr. Bush, after serving one year as Vice Chairman of the National Advisory Committee for Aeronautics, and as Chairman of its Executive Committee, was elected Chairman of the main Committee to succeed DR. JOSEPH S. AMES, who resigned on October 7. Dr. Ames had served as Chairman since 1927. He had also served as Chairman of the Executive Committee from 1919 to 1936.

The members adopted and signed a testimonial to Dr. Ames in appreciation of ". . . his unparalleled service to American aeronautics."

• HAYDEN BROOKS, a member of the Birmingham Aero Club, was recently appointed Chairman of the Alabama Aviation Commission by Governor Dixon.

• The Everel Propeller Corporation announces the appointment of PAUL F. HACKETHAL as Chief of Engineering and Production. Mr. Hackethal was formerly Chief Engineer of the Smith Propeller Company in Cleveland, Ohio, where he was responsible for the development of the Smith Controllable Pitch Propeller, later acquired by Aviation Manufacturing Corporation. Mr. Hackethal was transferred at that time to the Engineering Department of the Lycoming Division. During the past ten years he has been occupied in the design and production of variable pitch propellers.

• CHARLES BUDDY ROGERS, well known orchestra leader, and former movie star, has taken delivery of a new Fairchild "24", equipped with flaps, pants, radio, and powered with the Warner 145 horsepower engine. Mr. Rogers is using this 4-place ship for personal transportation between engagements and for pleasure flying during his stopovers at various cities throughout the country.

• WILLIAM H. WILSON has been appointed Director of Public Relations for Republic Aviation Corporation, formerly Seversky Aircraft Corporation. Mr. Wilson has been aviation and financial editor of the Philadelphia Daily News since 1936.

• CAPTAIN REED KNIGHT has been named Chief Pilot for Chicago and Southern Air Lines, with headquarters in St. Louis, the General Office of the Company.

• SAMUEL W. GRAY has been named General Manager of the Marvel-Schebler Carburetor Division of Borg-Warner Corporation at Flint, Michigan. Mr. Gray has been with Marvel-Schebler since 1929. CARL M. KALTWASSER, formerly General Manager, is now attached to the central office of the corporation.

• Mr. C. J. Reese, President of Continental Motors Corporation, announces the appointment of A. W. WILD as Manager of the Aircraft Division. Mr. Wild has been with Continental for fifteen years.

• Mr. Reese also announces the appointment of D. H. HOLLOWELL as Sales Manager of the Aircraft Division. R. D. HICKS will continue as Service Manager and J. B. FORNASERO will function as Sales Engineer.

• D. E. GAMBLE has been named President of the Pump Engineering Service Corporation of Cleveland, Ohio, a subsidary of Borg-Warner Corporation. Mr. Gamble for eleven years has been Vice President and General Manager of the Borg & Beck Division of Chicago, manufacturers of automotive clutches. He will continue in that capacity.

• RALPH H. McOUAT will continue as General Manager, and has been elected Vice president of Pump Engineering Service Corporation.

MISCELLANY

MIAMI ALL-AMERICAN AIR MANEUVERS

• Indications that fast commercial type airplanes will, on January 5th, race to Miami from more than 30 of this Nation's 48 States in what has been termed "the greatest air race in American aviation history", was anticipated by officials of the 12th Annual Miami All-American Air Maneuvers.

Claude E. Pullen, Air Maneuvers President, said that close to 70 fliers throughout the Nation already have applied for official entry in the MacFadden "On to Miami" race, opening event of this city's annual air show.

The race will be flown for a total of $8,000 in cash prizes with $4,500 and the Bernarr MacFadden Trophy going to the winner. Second place finisher will be awarded $2,500, with $1,000 going to the third place winner and $100 to each of the next five who finish the race with the best mile-per-hour elapsed time from their starting points.

Unique among aerial racing events, the race is open to all commercial-type aircraft of a registered cruising speed of 150 miles per hour, or more. Starting points are restricted only to points 1,000 miles or more from Miami.

Sixty-eight entrants were recorded during the first week after the announcement.

AIR SAFETY BOARD ANALYZES FATAL ACCIDENTS

• Spins and stalls combined with inexperience of the pilot continued to be the outstanding cause for fatal aircraft accidents analyzed by the Air Safety Board. Reports on the 210 aircraft accidents analyzed included eight of a minor nature in scheduled air carrier operations and 202 accidents in other than scheduled air carrier operations.

Ten of the 18 fatal accidents were attributed to stalls and spins. Low acrobatic flying contributed to five of the fatal accidents, and structural failure was ascribed as the cause of four fatal accidents. Two of these structural failures were contributed to by the pilot maneuvering his plane in such a manner that excess loads were imposed upon the structure. The Board believes that two of the fatal accidents reported could have been avoided had the pilots turned back after encountering adverse weather conditions.

RYAN ADDS TO INSTRUCTION STAFF

• Expansion of the instructional staff of the commercial training division of the Ryan School of Aeronautics, with the addition of four new technical instructors and two more pilots, was made coincident with the opening of the Fall Term, which brought to the San Diego school one of the largest enrollments in its seventeen-year history.

AIR EXPRESS SHIPMENTS UP

• Air express shipments in August over the 35,000 miles of airways in the United States served by Railway Express Agency totaled 74,150, an increase of 27.2 per cent over August, 1938, the Air Express Division of the agency has reported.

Gross revenue for August increased 31 per cent over the corresponding month a year ago, it was stated.

AIR TRANSPORT ASSOCIATION AWARDS

• Cash awards to pilots, dispatchers, and meteorologists of airlines of the United States for the best original research having practical application to aeronautical meteorology and aircraft dispatching, will be made annually, according to Colonel Edgar S. Gorrell, President of the Association.

The first of such awards will be available on September 1, 1940, with the first prize $250, the second $150 and the third $100. If, in the opinion of the award committee, no worthy research is produced by July 1, 1940, the $500 annual prize money will accrue to be added to a like amount available for use during the ensuing year.

The research papers, detailing the investigation and the conclusions which are to have practical application toward improvement in aeronautical weather forecasts and the dispatching of aircraft, must arrive by July 1, 1940, at the Air Transport Association, 135 South La Salle Street, Chicago. Collaboration between two persons is permitted. Chief pilots, chief meteorologists and other supervisory operations personnel are not eligible for the award. Research conducted by pilots, meteorologists and dispatchers in collaboration with such supervisory personnel will not qualify for the awards.

Published articles (3 copies) may be submitted for the consideration of the award committee; otherwise three copies of the papers—double spaced. Mathematical equations should be clearly delineated and formula completed in the papers.

In addition to these annual awards an Air Transport Association Fellowship for persons eligible for graduate work in meteorology, open to airline employes as well as students in meteorology, will be announced at an early date.

DC-3 ALTITUDE RECORD

• A new world's altitude record for Douglas DC-3 transport planes was unwittingly established in Chicago during the course of a flight in which two University of Chicago scientists photographed mesotrons, the heavy radioactive components of cosmic rays, from a United Air Lines plane.

The plane climbed to 28,900 feet, breaking the previous record of 26,300 feet for ships of its type.

The 21-passenger, twin-engined airplane was piloted by Captain W. E. Larned, assistant superintendent of flying for United's eastern division, and First Officer D. Luckman. It carried W. W. Davies, United research engineer, and Dr. Gerhardt Herzog and Winston Bostick, research associates at the University of Chicago.

Captain Larned, who had no thought of trying for a record, said the ship's engines were working perfectly at 28,900 feet and undoubtedly he could have continued to above 30,000 feet.

The plane remained aloft three hours and a half and the outside temperature at the 28,900 foot altitude was 30 degrees below zero. All members of the party wore oxygen masks.

U. A. L. TO ERECT NEW $200,000 HANGAR

• A new $200,000 hangar, embodying several innovations in design, will be erected by United Air Lines at the new Columbia Airport in Portland, Oregon.

A feature of the building will be a partial cantilever roof, which will permit the easy maneuvering of planes without the danger of damaging wing tips or tail assemblies. The plans include design arrangements simplifying all movement in the terminal quarters and United engineers believe it will be the most modern and efficient airline hangar in the country today.

AERONAUTIC EXPORTERS MEET

• One of the features of the Twenty-Sixth National Foreign Trade Convention held in New York City from October 9 through 11 was an Aeronautics Group Session at which were discussed the principal problems confronting the exporter of American aeronautic products. So conspicuous was the success of this meeting that it will assuredly be repeated annually hereafter.

The session was presided over by Howard S. Welch, export head of the Bendix Aviation Corporation. Brower V. York, Chief of the Aeronautics Trade Section in the U. S. Department of Commerce, and Irving H. Taylor, Export Manager of the Aeronautical Chamber of Commerce of America, assisted in the organization and conduct of the program. Among those present were a number of leading aeronautic export managers, executives of large and small plane producers, manufacturers of engines, instruments, parts and materials, bankers, and Government specialists.

CIVIL AIR REGULATIONS VIOLATIONS

• Pursuing its policy of strict enforcement of the Civil Air Regulations, the Civil Aeronautics Authority has referred to the Attorney General for appropriate action the cases of five pilots, accused of violations of the regulations, who have not replied to the Authority's charges.

The order of the Authority referring these cases to the Department of Justice states that all of the parties concerned were advised of the violations charged against them, that they have been given ample opportunity to present evidence, and that they have neither submitted evidence nor made a satisfactory offer to compromise the cases.

At the same time the Authority accepted offers in compromise from others who had been fined for similar violations.

POUND CHOSEN FOR TRIAL EXAMINER

• The Civil Aeronautics Authority has announced the appointment of ROSCOE POUND as Special Trial Examiner in the case now before the Authority arising out of the application of United Air Lines Transport Corporation for approval of the acquisition by it of control of Western Air Express Corporation and approval of the consolidation of the two companies.

The present case is one of the most important which has thus far been presented to the Authority. Basic legal and economic questions are involved, and their determination by the Authority is expected to lay down the principles along which the future development of air transportation in the United States will proceed.

Mr. Pound, who was Dean of the Harvard Law School for twenty years prior to 1936, is an internationally known authority on law.

PORTS OF CALL

Correspondence from the Airports and Airways

Biloxi, Mississippi

Coast Guard Acquires Large Seaplane

Biloxi Airport has just been mowed and presents a mighty nice appearance from the air as well as from the ground. The NW SE runway is all finished and we hope to complete some more runways in the future.

The CAA light maintenance man has moved his equipment to the local airport to better serve this section of the Atlanta-Houston run.

The Coast Guard Air base now has a new Hall boat, one of the largest seaplanes in use today. As yet no rescues have been made in it. A Curtis SOC was flown in last month and wings folded and taxied to the base where a single float was installed. It was test flown today by the base commander. That makes three new ships this summer. The third being the Consolidated trainer, for land use.

The Cub Distributor passed a number of Cubs through here going out to partake of the CAA training program. L. S. U. taking four, Lafayette, one; Shreveport, two; Monroe, two; Alexandria, one; Natchitoches, two; and several coupes going to private owners.

Cub has again dropped their prices, the Continental 50 that sold for $1,450 down to $1,368 and the Lycoming at $1,369 went to $1,298 thus bringing added savings to the lightplane market.—*W. O. "BOB" WIGHT.*

Brownsville, Texas

Airplanes Useful in Agriculture

To the rich banana district near Villahermosa, Mexico, Gardner Nagel delivered a Travelaire duster through the Brownsville port. The plane was for Gordon "Peck" Woodside who operates a fleet of planes and is doing a good business in passengers and freight.

C. O. Bell, from the tire center in Akron, Ohio, came in recently in his Stinson on a business trip.

E. J. Ruce, Mission, Texas, flew the length of the lower Rio Grande Valley to Brownsville in his Aeronca to see how the golden grapefruit and oranges were ripening for the coming harvest.

The famous pianist and conductor, Jose Iturbi, with pilot Hale, in their "Around South America" Howard have been making good use of the Brownsville field as a crossing place. After giving a concert in Mexico City, they stopped for an hour to refuel and clear papers, and were off for New York.

Les Mauldin, who operates a field near the Pan American base, circled a group of men in his Robin over Mexico trying to locate a large tract of wild castor beans. The valuable oil of this bean is creating interest as a new industry for the Rio Grande Valley.

Also operating out of the Mauldin Airport is the Department of Agriculture Autogiro which can be seen at odd moments of the day hovering on the horizon examining the cotton fields to see that they are properly plowed under in order to arrest boll weevil infestation.

A Beechcraft owned by Ben Bronson of the Lone Star Elevator has been doing excellent shuttle service for his fishing parties. With B. G. Eubank as guide, the group consisting of Bronson, Jack Burris, Sanford Nail, and A. Gillespie have been landing on the Gulf of Mexico beach in Mexico about sixty miles below Brownsville. This particular location is considered one of the finest in the world for angling. In fact, Eubank has built a business from it by operating a Thrush to carry fish as far as Matamoras where it crosses the border at Brownsville.—*T. C. PELIKAN.*

Enid, Oklahoma

New Students at Local Airport

This month finds winter closing in with its usual results, however there is much interest and, when weather permits, considerable flying activity.

New students during the past month are Wendell Perry, Dick Miles, Glen Haskins, Dick and Ralph Almond. Perry was forced to drop out just before he was ready to solo to take active duty in the army. Dick and Ralph are just renewing their flying both having flown some before.

Bill Vacin accompanied two students on their cross-country flights last month. They were Phillip Rhees who went to Ponca City, then to Stillwater and return, and Harris Underwood who went to Woodward, Okla.

The father and son team, Drs. J. A. and Kenneth Boyle, have been furnishing their part of the activity.

The Woodring Flying Club's Porterfield still has its wings clipped, since the twister in September did its damage. The Enid Flying Club has shown considerable activity with one change in membership. Pat Patterson purchased Kenneth Boyle's membership.

"Doc" Hutchinson purchased the four-place Curtiss-Robin from Roy Morgan. The ship is now being repaired after the twister's work.

Ben Gregory of Kansas City spent one week in Enid with his two Ford Tri-Motors.

Visitors this month included: Lieut. Ansel Baker of Barksdale Field, who flew a Northrop A-17-A; Lieuts. Osborn and Clark in a Seversky BT-8, Harold Kindred in an American BT-9 from Brooks Field, Johnny Keefer in the Halliburton Cement Company's Spartan Executive, and Dale Myers made his usual visits in the Spartan for Doyle Cotton. Capt. Brenthal who was flying a Ryan STM on his way from Dayton, Ohio, to California, stopped overnight. Al Guthrie and three of his assistants came to take their instructor's rerating. George Waller of Tulsa stopped in on four occasions.—*"ERNIE" McGEHEE.*

Fort Worth, Texas

New Aircraft Factory Announced

Last month we said "so long" with a STAND BY for further announcements. Well, here it is:

We are very happy to have an airplane factory to locate in Fort Worth which is known as the Bennett Aircraft Corporation, also, Bub Merrill who comes from Dallas. Work is progressing rapidly on the new factory of 25,000 square feet which is located two miles north of the airport. The new company will manufacture the Bennett Bi-Motor Executive Transport.

Wm. "Bill" Fuller, airport manager, and Mrs. Fuller have returned via Packard 1940 model from New York, Washington, and Trenton, N. J. While in Trenton they visited Mr. Fuller's parents who celebrated their Golden Wedding Anniversary.

Bill Bowerman who was flying a Spartan for the American Manufacturing Company has accepted a Government position with the Department of Commerce. Reg Robbins is now flying the Spartan for American.

Our port has been honored recently by the following visitors: Officers Jolett, Bachus and Fairbanks, from Barksdale Field flying a B-18 Bomber while making a cross-country flight. H. R. Harwell of Stamford flying an Aeronca en route to Denton. Mr. Englert of New Orleans stopping overnight flying a Waco which belongs to the Crescent City Flying Club. Don Walters from our neighbor city, Dallas, and who is with the Johnson Flying Circus, stopped for a short visit recently. Dr. F. C. Crane of Corpus Christi flying a Stinson stopped while en route to Tulsa. Mr. Browne from Shawnee landed for a few minutes in his Taylor Cub en route to Austin. M. H. L. Ritchie of the Adair Estate from Palo Duro, Texas, flying his new Cessna. Bob Singleton ferried in a new Aeronca from Cincinnati, Ohio, for Joe Hurslee.

J. C. Tolpo of the Airway Traffic Control Department has recently purchased a new Taylor Cub. W. J. Evans of the same department

HUMBLE
HUMBLE AVIATION PRODUCTS
Reliable Flight Companions

MODERN SHOW ROOM

Roy Taylor, Aeronca Distributor, who recently moved from Kilgore, Texas, to Fort Worth, has opened up a sales room in conjunction with his office on the Fort Worth Municipal Airport. He will keep various current models on display at all times.

has been transferred from Fort Worth to Brownsville, as operator in charge.

As far as autogiros are concerned, Kersey does not "windmill" on his newly acquired Kinner Bird as he usually lands it from an 85 degree angle.—*MARGARET EWING.*

Lafayette, Louisiana

New Plane Purchased by Flying Service

Glynne M. Jones of New York, Capt. Ben Fowler of Maine, and Ralph De Vore of Fort Worth, paid us an official visit recently, they having attended the N.A.S.A.O. meeting in New Orleans. Those attending from Lafayette were Fanny M. Leonpacher, Rosina Singer and Leo J. Gros.

Charles T. Browne, formerly of Tulsa, Okla., and now with the Edwards Drilling Company of Houston, is coming in for flying now from Broussard, La., where he is engineering a deep test well for his company. Mr. Browne needs little introduction in the flying field as he worked with Douglas at Santa Monica, Calif., on the DC-4, flew at Love Field, Dallas, and at Kilgore, Texas. Mr. Browne holds a transport license with C.A.A. instrument rating.

Bob Wight of New Orleans delivered a new Cub to the Lafayette Flying Service, recently. The Flying Service now has two Cubs and a PT9 for use in instruction. Instructor Gros reports four new students: Quinton J. Robichaux, Johnny M. Dupuy, Sterling R. Dublan, and Witton Elder.

Inspectors Clark and Mulligan of Dallas were at the airport recently on official business.

Edna Gardner, Harry Watson, R. L. Kidd, and Jay Theatres were in recently from New Orleans on a visit. Other visitors were: Dude Camden, Eddie Ross, T. R. Young, Albert Bell, Ace Corben, Leland Long, Harry A. Schaffer, Jack Broome, G. B. Corney, R. E. Breazel, H. C. Victory, J. L. Schroeder, Bill Pongino, Jr., and Orville L. Oakes.

Mrs. Fanny Leonpacher has been appointed National Editor for the "99's".

It is with the deepest regret that we report the death of Miss Rosina Singer, publicity chairman for the Evangeline Chapter, W.N.N.A. She was well known in local newspaper work, having been with the Daily Advertiser for the past 12 years. In the passing of Miss Singer, The Evangeline Chapter loses an ardent worker and a dear friend. Since the Chapter was organized, she has spent much of her time and given the Chapter and aviation the best she had. Her friends in aviation will miss her and I know will join with us in extending our sympathy to the bereaved family.—*MRS. F. V. HUTCHISON.*

Montgomery, Alabama

Many Visitors at Local Port

Charlie Thigpin, Jr., airport manager, took upon himself a bride recently in the person of Mildred Proctor of Birmingham, formerly recording secretary of the well known Birmingham Aero Club. The young couple honeymooned in a Waco, covering Chattanooga, Louisville, Troy, Ohio, Milwaukee and East St. Louis, Ill., enjoying a fine trip and lovely weather.

A number of visitors came through recently. They were: Leo Thompson of Clanton, Alabama, in a Porterfield; Chas. Wade of Clanton in a Monocoupe; Robert Crawford, well known tenor, in a Rearwin; J. A. Burke in a Luscombe, Bruce Cogle of Auburn in a Cub, H. A. Ivey of Montezuma, Ga., in a Rearwin; Dan Wallace of Orlando in a Fairchild; Hal Fry flying a Waco from Memphis; McGinnis flying the R. J. Reynolds' Stinson Tri-Motor; W. B. Broach in an Aeronca; Al LeFevre in a Stinson "105"; C. F. Bowey of New York in a Fairchild; Ralph Lockwood in the Gulf Stinson; Wally Schantz in an Aeronca; Buddy Rogers and Mary Pickford in the Fairchild; Bob Chumley of the Waco Factory; Mike Safer of Baton Rouge in a Cub Coupe; W. H. Neblett of Los Angeles in his Beech; Lieut. C. Edge of the Coast Guard in a Ranger Fairchild; Harold F. Wood of Birmingham in his Beech; Blanche Noyes in her Cessna; Deter Martin in the South Carolina Stinson; R. J. White of Atlanta in a Stinson "105"; H. R. Nelson in the Alabama Institute of Aeronautics Stinson, plus the following C.A.A. inspectors: W. M. Robertson, Jim Shipp, Truman Miller, Bill Hutchins, Fred Easly, and Dale Altman.

An effort is being made to organize a chapter of the N.A.A. To date, we have 41 members enrolled and haven't started yet. Look out, Birmingham Aero Club; we're comin'.

We hear that Jim Shipp, C.A.A. Inspector, has been very ill lately. Here's hoping you a speedy recovery, Jim. We are pulling for you.

We were all happy to hear that Hayden Brooks, former president of the Birmingham Aero Club, was appointed chairman of the Alabama State Aviation Commission. Hayden made a host of friends and had a most enviable record with the Birmingham Aero Club and will do well in his new position. Here's our wish for you, Hayden. See you next month.—*CHARLIE THIGPIN, JR.*

St. Joseph, Missouri

New Airplane Sales Reported

Activity has increased at the Municipal Airport and we are looking forward to a busy winter. With work now complete on the new concrete runways we can justly be proud of one of the finest airports in the entire country. St. Joseph School of Flying recently soloed two new students, H. N. Middaugh and Russell Smedley. The school now has a large number of active students including two new girls, Martha Hartwig and Velma Stetter. Both are nearing the solo stage.

Inspector C. W. Nelson granted solo licenses to H. N. Middaugh and D. H. Stewart. Johnny Limp, the airport's leading sportsman pilot, just returned with a shiny new Stinson "R" to be used for passenger hops and charter trips. L. A. Hood, District Manager for Aeronca recently sold new "Chiefs" to H. N. Middaugh, Lee Ryals of Unionville, and E. C. Long, of Hannibal. Lieut. Paul Howell, formerly of this field, was in recently flying a Boeing Pursuit. Paul is now with the Air Corps at Tulsa.—*DON STEWART.*

Savannah, Georgia

Armstrong Junior College in CAA Program

A change in by-laws which in turn effects a change in name was unanimously adopted recently by members of the Ogeechee Flying Club. The name has been changed to the Savannah Aero Club.

The Savannah Club is conferring with the Jacksonville Flying Club for the purpose of holding a joint flight to a nearby city within the next ten days. A previous flight by the Savannahians had been cancelled because of inclement weather.

The recent meeting took place at the residence of H. G. (Sandy) Strachan, Jr., 117 Gaston Street, West. Joseph Perelstine, president, presided. The next meeting is to be held at the home of Mr. Perelstine, "Tailspin Inn", at Savannah Beach.

Allen Smith, son of Mr. and Mrs. W. A. Smith, left for Glendale, Calif., to enter Curtiss-Wright Tech where he will take a course in aviation and engineering.

For the past two years young Mr. Smith has been a carrier for the Morning News. He is a graduate of Savannah High School and Armstrong Junior College. His father is president of the Savannah Cotton Exchange.

A further broadening of the educational scope of the Armstrong Junior College was announced here recently, the local college having just been designated as a training center for aviation students by the Civil Aeronautics Authority.

E. A. Lowe, president of Armstrong, announced he had received notice from Robert H. Hinckley, Washington, chairman of the Civil Aeronautics Authority, of the approval of Armstrong as a training school in the Civil Pilot Training program. The courses are conducted in various colleges under general supervision of the Civil Aeronautics Authority.

Mr. Lowe said Armstrong had been approved for the training of ten aviation students this year.

He said the ground training course would be given at the college and the practical flying work would be done at Hunter Field, Savannah Airport, with the co-operation of the Strachan Skyways, Inc.

Exact details of the course of instruction, instructors and time of the opening await arrival of further information from the headquarters of the Civil Aeronautics Authority.

President Lowe, speaking of those eligible, stated it would be open to freshmen students, and those with the better scholastic standing who prefer the work would be given preference. The course is open only to male students, he said.—*LYDIA MUSE BETTENCOURT.*

Shreveport, Louisiana

Many Enrolled at Centenary Ground School

The Centenary College ground class is now under way with "Prof" Claude at the stick. The following students are enrolled: Otis McCrary, Frank Word, Fred McClanahan, Charles Rose, Jerry Mize, Calvin Bains, Roy Caviness, Clarence Day, Bobby Moody, Angus Henricks, Coe Lewis, Malcolm Vickers, Henderson Dowling, Edgar Burke, Bennie Dennis, Ben Elwood, Robert Magers, Walter Henry, Harry Blake, Dorothy Courtney, Mrs. C. A. Morton, and Yours Truly. Two Cubs, to be used by those students taking the flight course, were brought from Memphis by Bob Emery and Ken Hunter.

A Halloween scavenger hunt and weiner roast was held at Municipal Airport Halloween night by the local unit of the Women's National Aeronautical Association. Prizes were won by Miss Elma Rodriquez, Nat Pedro, Bob Emery, and Miss Margaret Blake. Those attending were: Miss Elma Rodriquez, George Haire, Miss Margaret Blake, George Libal, Claude Hamel, Mrs. Hazel Elliott, Cliff Stovall, Mrs. C. A. Morton, J. I. Cole, Mrs. A. C. Hardman, George H. Bills, T. B. Herndon, Mr. and Mrs. Carl Lund, and Mr. and Mrs. Harry Hefley, Mr. and Mrs. Earl Field, Russel Reeves of Tulsa, Oklahoma, Mr. and Mrs. M. C. Thompson, Mr. and Mrs. A. E. McFarland, Ben Harkrider, Mr. and Mrs. Sam Pedro, Cotton Jeter, Harry Henderson, Bobby Mitchell, Mr. and Mrs. William Bagwell, Ken Hunter, and Mr. and Mrs. Roland DeJean, Bob Emery, Nat Pedro and Joe D'Anna.

Richard Beckley of the Private Flying Development Division of the CAA spoke at a dinner meeting of the W. N. A. A. recently. Mr. Beckley outlined the college training program recently inaugurated. Klondys Bailey received his private license and Mabel Waddell is the proud possessor of a solo ticket. Shreveport now has a seaplane!—J. H. Flynn installed floats on his Red Cub and it's a dilly!

Sammie Titone has quite a unique hobby—collecting baggage stickers of airlines—and it's catching. The collection is growing fast—every mail brings new ones. If someone doesn't put some snapshots in the airport scrapbook that collection might find a landing place.

Dodd College has a number of air-minded girls, but many of them were under the age-requirements of the CAA for their training program. However it is hoped that a class will be organized there next year.

George Hearne and Claude Hamel took a little hop down to the coast in the former's Aeronca. The yellow Fleet enjoyed its visit to Marshall. Reid Hebert, who has been taking a course in Chicago, returned home with a good report card.—*MARJORIE HARDMAN.*

Ponca City, Oklahoma

Thunderbird Aviation Club Active

Johnny Erickson is continuing rapid improvement with his broken leg, suffered during the Sportsman's Air Show in September when he made a parachute jump. He has not allowed the injury to interfere with his flying, even though he can not handle the controls. He and Herb Brokay were visitors to the Kansas City Airport where they were guests of the Kansas City Chamber of Commerce at a breakfast for all visiting pilots.

Ralph Cooley has recently returned from a deer hunting trip to Colorado. He states that the game was plentiful and that he bagged one of the largest deer he has ever seen.

Haskel McNiece and Tommy Smyer have placed their order for two new Cub training ships which they will use for the instruction of students from the Tonkawa College. They were awarded a contract by the C.A.A. to give the flight instruction at the Municipal Airport. Both have severed their connection with an oil company in order to devote their entire time to the new enterprise. They have acquired a Stinson to use in their charter trips which brings their equipment to a total of five ships.

The Thunderbird Aviation Club has entered a round of winter social functions which are proving to be very popular. The officers were hosts to Club members and their guests at a spaghetti dinner dance in the grill room of the Jen-Marie Hotel recently. Approximately 200 people attended the party to dance to the music of Marvin Franklin and his Ambassadors and partake of the spaghetti prepared by Paul Badami and T. J. Cuzalina. On a recent Saturday night, the Club sponsored a party at the Chicken Dinner Inn where dancing and refreshments were in order. The party proved to be very interesting and entertaining.

Pogue Ramsey "spun in" from the wing of a Lockheed 12 which he was repairing. He has been taking time on a pair of crutches since that time and is about to solo them. He suffered a severe knee injury in his accident.—*RALPH D. MURRAY.*

CLASSIFIED ADVERTISING

HOWARD DGA-9: 1937, 285 Jacobs, 175 hours. Plane and engine in excellent condition. Special color design, white with red trim, leather seats. Flares, landing lights, gas 127 gallons, manifold pressure, thermocouple, air temperature, carburetor temperature, full engine set, turn and bank, rate of climb plus standard instruments. Battery, generator, bonding and shielding plus other gadgets. $4,800.00. Perry Boswell, Jr., Mt. Rainier, Maryland.

CUB SEAPLANE: Continental dual 50, metallized, 60 hours time, sold new $2,220.00. Now, $1,825. Virginia Cub Distributors, Farmville, Virginia.

FOR SALE: Waco F, 125 hp. Kinner, majored about 80 hours back, excellent shape, licensed until July, 1940. Starter, brakes and tailwheel. $1,145.00. Paul Blackwell, 2105 Commerce, Dallas, Texas.

1932 WACO CABIN: Just relicensed, blind flying instruments, hood, 6-ply tires, generator, receiver, landing lights, starter, steel prop. $1,400.00. Odell Garrison, Muscle Shoals, Alabama.

REARWIN 1936 SPORSTER: LeBlond 85. Airwheels, compass, brakes, air speed. Fabric refinished and motor just overhauled. Class 2S. Highest offer over $1,000. J. C. Gugel, 220 Tampa Street, Tampa, Florida.

FOR SALE: 1937 Ryan STA, perfect, lots of extras, motor just majored. Special instruments, shockproof panel, blind flying hood, plastacelle military winter inclosure. Price, $2,800.00. Can finance. Leonard Condit, 3211 East Morris, Wichita, Kansas.

DART—New Airplane. 130 hours total time. 90 hp. Ken Royce engine, bank and turn, elapse time clock, wheel pants, electric starter, generator and battery, navigation lights, cabin ventilator, hand rubbed finish, looks like new. Cost $4,528.00. Bargain, $2,900.00. Dr. M. J. Renner, Goodland, Kansas.

WACO 1934 Custom Built 210 Continental. No time since major, sodium cooled valves, bank and turn, rate of climb, sensitive altimeter, landing lights, flares, radio receiver, starter, Hamilton steel propeller, carburetor temperature. $2,200.00. Will take trade. Amarillo Air Service, Inc., Amarillo, Texas.

1934 TAYLORCRAFT—40 hp.; Gray with orange trim, cabin heater. Just relicensed. Remarkable bargain at $695.00 F. A. F. Memphis, Tennessee. Aviation Credit Corporation, Robertson, Missouri.

DAVIS LEBLONDE 65: Just recovered and majored, new prop, ship and engine perfect. $695. Will take good used car in trade. Amarillo Air Service, Inc., Amarillo, Texas.

RYAN B-1: Large tail surfaces. Ship and engine just completely checked. Air wheels. Low hours. At $795, finance or trade. Licensed to May 1, 1940. Brayton Flying Service, Inc., Lambert Field, Robertson, Missouri.

1938 DeLUXE TAYLORCRAFT: Franklin 50 hp. Brakes, compass. Green with red trim. An exceptional bargain at $1,225.00 F. A. F. Memphis, Tennessee. Aviation Credit Corporation, Robertson, Missouri.

MILES SPARROWHAWK: NC-191M.1p01m. Licensed to 7-1-40. 356 hours Gypsy 130 hp. Alternate cruising 140-155 mph. Lands 45 with full flaps. Range over 850. Gas 61 gallons. Plywood structure. High gloss finish. Manufactured 1936. Extremely sensitive high performance airplane. Looks like a Greve Trophy Racer. Purchaser must have at least 100 hours. $2,550.00. Perry Boswell, Jr., Mt. Rainer, Maryland.

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The Sky's the Limit

(Continued from Page 15)

THE other night we heard an interesting discussion of airport management policies. Apparently some people believe there is a difference in requirements and policies as regards private flying and airline operations. Frankly, we can't see any difference or any clashing of interests involved between the two types of operations, especially from the point of view of airport management and operation.

We don't object to the airlines having right of way. In this country the attitude has always been that the will of the majority should prevail; and usually there are more people in an airliner than in a private airplane. This doesn't mean that the airport should be held open for an airliner for thirty minutes to the exclusion of everyone else. We believe it is most short-sighted for an airport manager to merely "tolerate" private flyers and to lend all efforts and support to airline operators. We do not believe that the airlines require or desire this sort of policy. We are familiar with a number of airline executives and airline pilots; we have found that they are fine folks and doing their best to get along. In spite of the fact that we do most of our own flying, the airlines have gone out of their way to give us credit cards, courtesy cards, little extra services, etc., which we keenly appreciate.

In comparing private flying and airline flying from the point of view of dollars and cents involved, that is, as far as actual commerce is concerned, in our own home town it stacks up about like this: American Airlines with two flights each way per day and Mid-Continent Airlines with its two flights a day average far fewer take-offs and landing than the large number of private owners based on the two Tulsa airports. Two of our local business enterprises use the same type equipment as some airlines use; others, in the number of about twenty, use fast and roomy single engine airplanes. At least three Tulsa concerns who use private airplanes as their principal method of transportation carry on business that will gross from five to ten million dollars annually. Undoubtedly this represents more potential by far than the local airline operations.

So, from the point of view of political prestige, financial backing, cash outlay and cash actually expended in flying operations, there is no advantage to the airport or city in catering to one phase of operation and disregarding the other. We want both to prosper.

Practically no airport shows any actual profit when interest on the investment, depreciation and other costs are figured. If the proper attitude, energy and ambition could be put into the driver's seat at many airports, the situation could be very handily cured. If an airport is almost breaking even, it behooves the management, whether municipal or private, to do everything in his power to pull in any increments of business, large or small, Piper Cubs or Lockheed 18's.

We never have been of the opinion that the public should be called upon to subsidize aviation. Yet, because of the way most aviation interests have been handled, they have not been able to pay their own way and therefore could not have existed without a measure of subsidy. The time is rapidly approaching when the volume of business, if properly handled and if ordinary good business management is used, will provide reasonable profits for any good airport. While flying about the country our casual observation has been that too often we have large and impressive administration buildings with little or no intelligent administration.

FRIEND LES BOWMAN was in the other day and gave us a very convincing sales talk on the Stinson 105. Some people have complained that the 105 does not have an excellent take-off performance. From actual tests conducted in competition with other airplanes, we found that the 105 will get off in as few feet of actual run as any airplane in its class under full load conditions and that because of its relatively slow climb it will still clear an obstacle at the end of the field or slightly beyond with at least as good a margin as any other airplane. Consider these figures, for example: On a 3,000 foot runway with a 50 foot obstruction at the end, considering no wind, the Stinson 105 has taken off after a 600 foot run when fully loaded. This leaves 2,400 feet of runway unused, or approximately one-half mile. At a climbing speed of 60 m.p.h. this one-half mile will require one-half minute. Consequently, at a climbing rate of 500 feet per minute the 105 would clear the obstacle by 200 feet. A faster airplane taking off fully loaded in the same 600 feet but climbing at 120 m.p.h. would pass over the obstacle in one-fourth minute and at 1,000 feet per minute climb would clear the obstacle by exactly the same amount as the 105. Therefore, it is obvious that this ship can not be compared directly by figures, but in actual performance facts it appears to be comparable to other ships. Our experience in the 105 has been quite limited, but was very illuminating. We do not believe that any person with a solo license could get into very serious difficulty with the 105, other than to either fly it straight into the ground or a brick wall or something similar.

Will be back with more next time. Any comments or news items will be appreciated. Just write us care of *Southern Flight*.

Pick Committee for C. A. A. Program

● The National Research Council has announced the names of those who will serve on a committee to study the selection and training of pilots in connection with the Civil Aeronautics Authority's program for 10,000 students in the colleges and universities this year.

The members of the committee announced are as follows:

JOHN G. JENKINS, well known for his work in applied psychology in the department of Psychology of the University of Maryland, is Chairman.

Members are CARL E. GUTHE, ex-officio chairman of the Division of Anthropology and Psychology of the National Research Council;

COMMANDER JAMES C. ADAMS, M.C., U.S.N., Chief, Aviation Section, Bureau of Medicine and Surgery, Washington;

CONRAD BERENS, distinguished for war work and for his textbooks on ophthalmology, New York City;

HAROLD R. BOHLMAN, clinician and very active private flyer, Baltimore.

ALEXANDER FORBES, Professor of Physiology, Harvard Medical School, Boston.

COL. DAVID GRANT, U.S.A., Acting Chief, Medical Division, U.S. Army Air Corps, Washington;

H. M. JOHNSON, active in physiological and psychological work during the last war, Tulane University, New Orleans;

H. S. LIDDELL, the physiologist of Cornell University, Ithaca;

ROSS G. McFARLAND, who has done extensive work with the airlines on pilot fitness, Harvard University, Cambridge;

WALTER H. MILES, whose work on vocational aptitudes is known throughout the industry, Yale University, New Haven;

CAPTAIN G. D. MURRAY, U.S.N., Chief of Personnel, Bureau of Aeronautics, Navy Department, Washington;

L. J. O'ROURKE, U. S. Civil Service Commission, Washington;

LEONARD POVEY, Chief Pilot Inspector, Civil Aeronautics Authority, Washington;

C. L. SHARTLE, U. S. Employment Service, Washington;

COL. A. D. TUTTLE, U.S.A. (ret.), Chief Medical Inspector, United Air Lines, Chicago;

FRANK FREMONT-SMITH, the distinguished psychiatrist of the Macy Foundation, New York;

MAJOR J. F. McBAIN, in charge of pilot training in office of Chief of Air Corps, U. S. Army, Washington.

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